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"Love Thou Thy Land."

Women's Canadian Historical Society of Ottawa.

Transactions Vol. II.

The Waterways of Canada

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"Love Thou Thy Land."

WOMEN'S CANADIAN HISTORICAL SOCIETY OF OTTAWA

The Waterways of Canada

TRANSACTIONS—VOL. II.

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The Pioneers and Voyageurs.

A glance at the map of the Dominion of Canada shows us at once that it is pre-eminently a land of waterways. Fortunate it was for the early settlers, that this is the case, for they formed his highway and only means of communication.

Considering first the early settlements in Quebec, during the seventeenth century, we find that in the more exposed parts houses were gathered together in palisaded villages. "The seignior divided his seigniory into small allotments, and the settler naturally preferred to build when he could on the front of his farm, near the river, which supplied the place of a road. As the grants were very narrow, his house was not far from that of his next neighbor, and thus a line of dwellings was ranged along the shore forming a côte, a use of the word peculiar to Canada." "The seignior had a variety of tasks to perform; to clear and cultivate his land; to build his seigniorial mansion, often a log hut; to build a fort; to build a chapel and a mill." To do all this at once was impossible, so the first settlers were usually forced to grind grain for themselves after the tedious fashion of the Indians.

"For a year or two the settler's initiation was a rough one; but, when he had a few acres under tillage he could support himself and his family on the produce, aided by hunting, if he knew how to use a gun, and by the bountiful profusion of eels which the St. Lawrence never failed to yield in the season, and which smoked or salted, supplied his larder for the winter months. In winter he hewed timber, sawed planks, or split shingles, for the market of Quebec, obtaining in return such necessaries as he required. With thrift and hard work he was sure of comfort at last. Yet thrifty or not they multiplied apace. "A poor man," says Mother Mary, "will have eight children and more, who run about in winter with bare heads, and bare feet and a little jacket on their backs, live on nothing but bread and ells, and on that grow fat and stout." With such treatment the weaker sort died; but the strong survived, and from them sprang the hardy Canadian race of bush-rangers, and bush-fighters.

"The manners of the mission period (1670-1700) were extremely simple. The old governor, Lauzon, lived on pease and bacon like a laborer, and kept no man-servant. He was regarded as a miser, it is true, and held in slight account. Magdelene Bochart, sister of the Governor of Three Rivers, brought her husband two hundred francs in

money, four sheets, two table-cloths, six napkins of linen and hemp, a mattress, a blanket, two dishes, six spoons, and six tin plates, a pot and a kettle, a table and two benches, a kneading trough, a chest with lock and key, a cow and a pair of hogs. But the Bocharts were a family of distinction, and the bride's dowry answered to her station. By another marriage contract at about the same time, the parents of the bride being of humble degree, bind themselves to present the bridegroom with a barrel of bacon deliverable on the arrival of the ships from France."

One historian gives us this picture of town and country life: "August, September, and October, were the busy months at Quebec. Then the ships from France discharged their lading, the shops and warehouses of the lower town were filled with goods, and the habitants came to town to make their purchases. When the frosts began, the vessels sailed away, the harbor was deserted, the streets were silent again, and, like ants or squirrels, the people set to work to lay in their winter stores. Fathers of families packed their cellars with beets, carrots, potatoes and cabbages; and, at the end of autumn, with meat, fowls, game, fish and eels, all frozen to stony hardness. Most of the shops closed, and the long season of leasure and amusement began. . . . In the country parishes there was the same autumnal storing away of frozen vegetables, meat, fish and eels, and unfortunately the same surfeit of leisure through five months of the year. During the seventeenth century many of the people were so poor that women were forced to keep at home from sheer want of winter clothing. Nothing, however, could prevent their running from house to house to exchange gossip with the neighbors, who all knew each other, and, having nothing else to do, discussed each other's affairs with an industry which often bred bitter quarrels. At a later period a more general introduction of family weaving and spinning served at once to furnish clothing and to promote domestic peace."

In Upper Canada as in Lower Canada, the pioneer's life was one of labor and privation. Trees had to be felled and the ground cleared, first for the cabin, then for seeding. All the buildings were of logs. "The cabins were commonly one-roomed, with roofs of bark stuffed with moss and clay. Chimneys were at first made of sticks and clay, later of stone and brick. In strange contrast to the crude surroundings were the few pieces of old furniture, the tall clock, the chairs, and "secretaries" which some of the Loyalists had brought with them from their former homes. Too often the furniture was limited to a bed made of four poles with strips of basswood bark woven between.

Even the making of chairs and tables was postponed until the "clearing" was completed.

1788 is known as the "Hungry Year" owing to the failure of the harvest. "Roots of all kinds, ground-nuts, butternuts, and beechnuts were eagerly sought. Buds of basswood, lambs-quarter, pig-weed, Indian cabbage, and other weeds were common diet. Game of all kinds, deer, rabbits and pigeons, was plentiful, but powder and shot were very scarce."

To add to these discomforts the supply of clothing was scanty. For some time after his arrival the Loyalist gentleman wore the fine raiment of more prosperous days, the frock coat, lined with velvet, white satin waistcoat, black satin knee-breeches, white silk stockings, and silver-buckled shoes. These soon gave place to humble, home-made garments made of coarse linen. The poorer people dressed in garments of deerskin.

The absence of schools and churches was the most serious drawback of this pioneer age. These appeared later with thicker settlement and better roads. Then "frolics" or "bees" for chopping and building became common, and later, "husking" and "framing bees." Venison, turkey, pies, "johnny-cake," and "pumpkin cake" were handled with dishes and spoons made of wood, which gave place later to pewter utensils.

According to the Encyclopedia Brittanica "Voyageur" is "The Canadian name of one of a class of men employed by the North West and Hudson's Bay Companies in transporting men and supplies, and, in general, in keeping up communication between their various stations, which was done exclusively in bark canoes, the whole region formerly under the exclusive control of these companies being almost everywhere accessible by water, with few and short portages. These men were nearly always French-Canadians or half-breeds."

"Such was the routine of our journey, the day, generally speaking, being divided into six hours of rest and eighteen of labor. This almost incredible toil the Voyageurs bore without a murmur, and generally with such a hilarity of spirit as few other men could sustain for a single forenoon"—so writes Governor Simpson in "A Journey Round the World."

It is difficult to obtain information about these men. The following extracts from Harmon's quaint "Journal" are of interest:

La Chine, April, 1800—"The goods intended for the interiour or upper countries are here put on board of canoes. These canoes, which are constructed of the bark of the birch tree, will carry a burden of three and a half or four tons each; and are severally manned by eight

or nine Canadians, who are said to manage them with greater dexterity than any other people."

"The whole squadron, which consists of thirty canoes, is divided into three brigades. One or two Guides or Pilots are attached to each brigade. Their business is to point out the best course up and down the streams and through the lakes, and to take charge of the canoes and property on board. They attend to the repairs of the canoes, which are frequently broken, and have the same command over the men attached to their respective brigades, as the commander of a vessel has over the men on board. The Voyageurs, as the men are called, have many of the customs of sailors; and among them the following:

"By all those on board who have never passed certain places, they expect to be treated with something to drink; and should a person refuse to comply with their requisitions, he would be sure of being plunged into the water, which they profanely call, baptizing him. To avoid such a disaster, I gave the people of my canoe a few bottles of spirits and porter, by drinking which they became very merry, and exhibited the reverse of their appearance a few days since, when, with heavy hearts and weeping eyes, they parted from their relations."

Chute au Blondeau.—"We have a strong head wind. But, since yesterday morning we have come nearly sixty miles, and have passed two rapids. At these places, most of the property was taken out of the canoes and carried across the portages on the backs of the people. The young men, who have never been in the Indian countries, now began to regret that they had enlisted into this service, which requires them, as they say, to carry burdens like horses, when, by remaining in their own country, they might have labored like men."

The Three Kettles.—"In the former part of the day, we passed a beautiful waterfall, where the Riviere au Rideau, or Curtain River, falls into this, which is the Ottawa River. The former is ten or twelve rods wide, and the water falls perpendicularly, about forty feet, presenting at a little distance, an appearance at once pleasing and grand."

"The Canadian Voyageurs, when they leave one stream to go up or down another, have a custom of pulling off their hats, and making the sign of the cross, upon which one in each canoe, or, at least, in each brigade, repeats a short prayer. The same ceremonies are observed by them whenever they pass a place where anyone has been interred, and a cross has been erected. Those, therefore, who are in the habit of voyaging this way are obliged to say their prayers more frequently perhaps, than when at home; for at almost every rapid

which we have passed since we left Montreal, we have seen a number of crosses erected; and at one, I counted no less than thirty."

The life of the voyageur, like that of the pioneer, was one of toil, hardship, and privation, but may we not say of them:

"Hees heart was young, an hees heart was light

"So long as he's leevin' dere."

ELIZABETH M. CLUFF.

November, 1906.

Lachine, and Origin of its Canal.

The waterways of Canada, leading from the great lakes of the interior, outward to the high seas, are a very important factor in the material prosperity of Canada, and are, therefore, suitable subjects for the consideration and study of this Society. In their developments, they have followed the march of progress which is everywhere evident in our country, and they have a history of their own, which is most interesting to relate. The subject of this paper, "The Origin of the Lachine Canal," is a most fascinating one. It brings us as far back as Jacques Cartier, who, in 1535, in his second voyage to Canada, was the first intrepid European explorer to go up the St. Lawrence from the present City of Montreal as far as the rapids, but was unable to ascend farther, on account of the swiftness of the current. His first project on his third voyage in 1541 was to explore the "Sault," as it was afterwards called. Starting with a single launch, manned by double the ordinary crew of oarsmen, and seeing that the ascent could not be made, he decided to proceed by land. Directing his way along a beaten path, he met four Indians and explained to them, by signs, his desire to see the head of the rapids. The braves offered themselves, but, after a long tramp, they told Cartier that there were other rapids in the distance. Whether this information discouraged the explorer, we cannot say; the records only tell us that he retraced his steps to the landing place, launched his boat and returned to his starting point. Cartier never again visited the "Sault," and sixty years elapsed before France again concerned herself about the St. Lawrence and her rapids.

In 1603 Champlain arrived in the country with the intention of establishing a colony. On June 4th of that year, accompanied by Dupont Gravé, he determined to explore the big rapid which was made known through the visit of Cartier. The following July, after three miles of hard rowing, he arrived at the foot of the rapid, where he found some three or four feet of water. The ascent in a small boat was not feasible, and desiring to explore the extent of the rapid, after the example of Cartier, he proceeded by land along the North shore of the river for a distance of three miles, which, in his opinion, was about the length of the rapid. Finding he could go no further, he went back to his boat. On his return, he decided to lay the site of his

intended settlement, not at the rapid, which he named "Sault St. Louis," but upon a spot situated six miles further down, at the foot of "Mount Royal," which he called "Place Royale," subsequently known as "Pointe-a-Callières."

In 1615 he again visited the "Sault," but was so intent upon his fur traffic with the Indians, who were bringing their furs from their hunting grounds on the Ottawa River and the region of the Great Lakes, that he did not make any further attempt to ascend the rapid.

In 1642 the trading post at the foot of the rapid was merely a summer rendezvous, where the fur traders met the Indians from the Ottawa.

In that year (1642) Montreal was founded. The enterprise was a religious one and undertaken by religious gentlemen of France. Father Olier, better known as the founder of the Sulpician Order, with his colleagues, planned the building of a town to be known as Ville Marie, Maisonneuve being at the time Governor.

The Sulpicians became Seigneurs of the whole island, and immediately proceeded to establish settlements along the shores, in order to be informed without delay of any threatened attack on the part of the Iroquois, and also to have in the vicinity a sufficient force for resistance, in case Ville Marie was attacked. They even created several "fiefs nobles" above the "Sault" as far as the upper extremity of the island. Among others, one was granted to a young Norman full of courage and ambition, and whom I shall introduce as the first European inhabitant of Lachine Robert, Cavalier de La Salle. (Some have called him Chevalier de La Salle, but Mr. Sulte, in answering one of his correspondents as to de La Salle's true name, says that de La Salle was never a Chevalier, and that his name was Réné, Robert Cavalier, surnamed La Salle). At that time the virgin forest completely covered the shores and there was no trace whatever of the presence of man, if you except the footpath along the river followed by Champlain when exploring the head of the island. He occupied his Seigniory from 1666 to 1669 and called it "Seigniory de St. Sulpice."

Historians have differed as to the origin of the name "Lachine," some claiming that it was given by Mr. de La Salle. This is improbable, as in that case he would very likely have given the same name to his Seigniory, which he called "St. Sulpice." In all probability the name "Lachine" was derisively given, owing to the failure of his expedition in 1669, when in search of China and Japan. Mr. Dollier, in his "History of Montreal," attributes the new name to the unexpected return of de La Salle's companions, and Jostel, in his narratives

of 1668, asserts that the name Lachine arose from de La Salle's pretensions that he would discover the way to China.

Several forts were also built from Ville Marie to the head of Lake St. Louis. De La Salle having sold his Seigniory to Jean Milot when he started for his far-off expedition, the task fell upon the latter of carrying out the obligations to the Sulpicians, which were to erect a fort and mill by way of protection to the settlers. The fort was first called "Fort Lachine." After the locality was formed into a parish it was called "Fort Remy," after the name of the first priest.

Other forts were also built—"Fort Cuilleriée," "Fort Rolland" and "Fort La Presentation." The forts of Lachine were not warlike posts, able to resist the attacks of European soldiers, but rather trading posts for the protection of the merchants and a refuge for the colonists in case of an attack from the Indians.

The project of binding Montreal and Lachine by canal dates from the beginning of the colony.

A missionary writes in 1692 that the first French establishment in the St. Lawrence is Lachine, and that it would be easy to make a canal there by means of the river St. Pierre. There would be, he says, very little ground to cut in order to make a passage from the lake to the little river on the said island, and by removing the fallen trees its bed would be deep enough to float bateaux coming down from above. The young colony, however, was too poor to build a canal with locks, to overcome the considerable fall of nine miles of river, from Pointe-a-Callières to Lachine.

In a most interesting paper read in Montreal some time ago by Mr. Marceau, ex-President of the Society of Civil Engineers, he says it had been his good fortune to peruse some of the old manuscripts of the gentlemen of the Seminary of St. Sulpice, and to find in them efforts made by former members of their Order to overcome the difficulties of navigation between Montreal and Lachine. The method of navigation at that time was by canoes and was exceedingly dangerous, many portages intervening between navigable stretches, and even in these navigable stretches towing had to be resorted to, and several accidents had occurred.

In the year 1700 the Superior of the Sulpicians, Mr. Dollier de Casson, undertook to improve the little river St. Pierre and make it navigable for canoes from its mouth to Lake St. Pierre, and also to open a cut from the lake to a point on the St. Lawrence. A notarial contract was signed between the contractor, Gedeon de Catalogne, and Mr. Dollier de Casson, for the excavation of a canal about a mile in length, twelve feet wide at the surface of the ground, and varying in

width at the bottom according to the depth of cutting. The work began in 1700, and in the following year the contractor failed, after having performed the greater part of the work, which was left in this unfinished condition despite all the efforts of the Sulpicians to complete it.

In 1708, Louis XIV. ordered plans and estimates to be submitted to him, but owing to the condition of affairs in France during the latter part of his reign, the scheme had again to be postponed.

In 1714, the Sulpicians completed a small canal from Lachine to river and lake St. Pierre, as they possessed several farms there, one in particular called St. Gabriel, with a two-story stone house, (still standing, although abandoned). At the end of the domain stood two hydraulic corn mills, supplied by the water of the little St. Pierre. (This river runs today beneath the Lachine Canal at Cote St. Paul and Verdun. Lake St. Pierre has long disappeared, owing to the work done in connection with the Lachine Canal.)

In 1717, Mr. Chaussegros de Lery, who had charge of all the civil engineering and military works of Montreal, reported that three-quarters of the work had been accomplished.

In 1733, the same engineer made a complete survey and prepared fresh plans and estimates, but no report or document of Mr. de Lery's is on record in the documents referred to.

Bellin's map shows the Lachine Canal as completed, whereas attempts were made to complete it only on one or two occasions in 1700 and 1714.

According to Mr. de Lery's map, this canal was begun by the Sulpicians, who abandoned it, owing to the rock.

A small map shows the position of the improved waterway at the time of the cession of Canada to Great Britain in 1763. It is designated by the name of "Canal de la Maurandiére," the author of the map being under the impression that Mr. de la Maundiére, one of the Royal Engineers of Ville Marie, had completed the work undertaken in 1700.

The literature of our canal system is in a very rudimentary state, as regards the early period; in the meantime, those who desire to trace their origin must be content with a few reports and letters of the Royal Engineers.

The late Douglass Brymner, one of the Dominion Archivists, says that great uncertainty exists as to the dates when various public works were constructed in Canada, owing to the fact that they were executed by the Imperial Government, and that on this account no record exists in our Departments in Canada to throw light on the subject. It is

certain, however, that these canals were not built during the French regime, for Bougainville, in his "Memoirs of New France," 1757, describes the passage upwards, speaking of the frightful rapids, giving in detail the names of the places passed, describing the "Cascades," the "Buisson," with its strong currents and difficult navigation over the whole course, the portaging at various points, but making no mention of canals, except in speaking of Lachine, to which place he says a canal from Montreal had long been spoken of, but none built. It is clear, that situated as the French were in 1757, no canal could have been built in the interval before the conquest in 1759 and 1760. The positive evidence is that Colonel Gother Mann, one of the Royal Engineers, in his report of the state of the canals, dated December 24th, 1800, says that they were built in 1779 and 1783. The exact date of construction can be settled positively by the letters of Captain Twiss, of the Royal Engineers, under whose direction the works were executed, in accordance with the instruction of Haldimand, then Governor-General of Canada, who designed these canals for facilitating the transport of military stores and munitions, but with a secondary object of assisting the merchants.

It is surprising that in 1779 and 1783, when the Imperial Government was making canals at the "Cascades," the "Cedars," and "Coteau du Lac," a canal at Lachine should not have been decided upon.

In Bouchette's time, 1815, and down to 1824, passenger traffic between Montreal and Toronto was carried on the way down in bateaux, barges and Durham boats, as far as Lachine, and, going up, partly by ordinary vehicles by a road, called the Montreal Road, along the North shore of the St. Lawrence, and partly by bateaux over the lakes. Beyond Kingston, recourse was generally had to open sailboats.

I read in Hopkins' Encyclopedia a valuable history of the Lachine Canal, prepared by Sir John Bourinot in 1871. He says: "The Lachine Canal was perhaps the greatest piece of work after the conquest."

A bill was introduced in the First Parliament, which, however, did not pass, as the resources of the Province were not considered equal to the undertaking. In 1815 the exigencies of war in the transport of munitions led the then Governor, Sir George Simpson, to recommend its excavation, and an Act of the Legislature was passed, appropriating £25,000 in aid of its construction. Peace followed, and no further effort was made. In 1819 a joint company was chartered and stock to the extent of £150,000 to be raised by £50 shares, was authorized. This scheme also failed; but in 1821 an Act was passed

by consent, that the subscribers should abandon their rights on receiving back their money, and that the work should be undertaken by the Province. A contribution of £10,000 was made by the Imperial Government, on condition that all military stores toll free.

The work commenced on July 17th, 1821. The Hon. John Richardson, chairman of the management of the canal, turned the fi,rst sod. Thomas Burnett was the first engineer. The contractors were Bagg & White, McKay & Redpath, and Phillips & White. It was opened in August, 1824. The canal was 8 miles 718 yards long, 28 feet wide at the bottom, 48 feet at the water line, with 5 feet depth of water throughout. The locks, seven in number, were 100 feet long, 20 feet wide, and of sufficient depth to allow the passage of vessels drawing 4½ feet of water. In 1843 the enlargement of the canal was commenced, but in 1844, during its progress, several representations were made by the merchants to hasten the work. In order to meet their requirements: Locks No. 1 and 2 were deepened to 16 feet, water on sills, to allow the passage of the larger vessels to enter the first basin, when visiting Montreal for some days. The enlargement of the whole canal was completed in the Spring of 1848, but it was not till 1882 that the canal was excavated to its full width—a very expensive undertaking, as the cutting was through Silurian limestone for some distance inland.

The first steamer between Lachine and the "Cascades" ran in 1824. In 1825 the steamboat "Lake St. Louis" was in use between the two places. The rapids were overcome by means of portaging in coaches drawn by four or six horses.

The building of the canals may be divided into four periods—from 1779 to 1816, from 1816 to 1844, from 1844 to 1870, and from 1870 to 1905.

The dimensions of the canal at present are: 270 feet long, by 45 feet wide, and 14 feet deep.

These different periods marking a corresponding development of the population and the riches of the country.

What changes since the origin of this canal! We of the twentieth century are the beneficiaries of the persevering labor and enlightened energy of the first settlers of this our Canadian home; but do we sufficiently appreciate the benefits they have conferred upon us? Has it ever occurred to us, when taking one of the palatial steamers of the Richilieu Company and travelling with every comfort, to look back upon the days of the hardy pioneers, when they had to put up with such discomfort and expose themselves to such dangers?

It is well for us to go back to the early days of Canada in order

to appreciate the contrast between them and these present times of luxury and ease. A study of the early days will make our country and our travels much more interesting for us, as was well remarked by one of the members of this Society at our last meeting.

To illustrate, let us go over these nine miles from Montreal to Lachine.

Leaving Montreal Basin in one of those magnificent steamers plying between Montreal and the Great Lakes, you pass through those five great locks, which are triumphs of engineering skill, and see on either side, as you ascend, the numerous industrial concerns which indicate the present prosperity and ceaseless activity of this Canada of ours, as well as the beautiful residences which replace the hut of the white man and the wigwam of the Indian.

Going through, you will observe at a distance the old stone house, still standing on the very spot where the Sulpicians completed their first canal in 1714.

A little further up, on the River St. Lawrence, near the entrance to the old aqueduct, on the slope of the hill, just before reaching the "King's Post," was built "Fort Cuilleriée" in 1676. This "King's Post" was built by the British Government at the end of the eighteenth century. It consisted of a powder magazine, barracks, sheds and stores, traces of which still remain on the Lower Lachine Road.

As we advance we come to where de La Salle's wooden homestead stood, de La Salle's seigniory being where today the novitiate of the Oblats Fathers is erected, in close proximity to the C.P.R. bridge, which crosses the river to Caughnawaga at that very point.

About two hundred yards West of the toll gate, near the lock, a two-story stone house still stands. Under its roof, in the year 1804, the Irish poet, Thomas Moore, was entertained on his visit to Canada. While there he composed the "Woodpecker," the incident therein referred to having occurred between the house and where is now situated the old canal.

Nearing Lachine and on the spot where the handsome convent of the Sisters of St. Annes now is, once stood the residence of Sir George Simpson, who was the controlling spirit of the fur trade in the North-West. It was here that in August, 1860, he entertained His Royal Highness the Prince of Wales (today our beloved King.)

Near the wharf there was built in 1670 "Fort Rolland," and a little further West, in 1668, "Fort La Presentation," near the pot where today stands the Church of England at Dorval.

We have reached Lachine, which is an important town, with handsome residences, several beautiful churches, religious institutions, and large manufactures, including the Dominion Bridge Company, also the Dominion Wire Company. Still, this pretty town, with all its charms, cannot prevent one's thoughts from drifting back to the days of the massacre, when during the night of the 4th of August, 1689, fifteen hundred Iroquois crossed Lake St. Louis, within a few feet of "Fort La Presentation." Not daring to attack the fort, they silently landed on the Lachine shore, setting fire to every house, killing men, women and children, and making others endure all the atrocities which the fierce instinct of the Iroquois knew so well how to apply.

We have now come to the end of our journey, which, let me presume to hope, has possessed a little interest for the members of this Society.

Great indeed have been the changes from the past. Gone are the war canoes of the Indian; gone are the thatched roofs of the early settlers, as well as their sufferings and privations, and that we have fallen upon more peaceful and better times. May we still continue to enjoy this prosperity and peace under the British flag, which is, everywhere, the symbol of liberty, law and order.

CORDELIA E. RHEAUME.

The writer desires to tender her sincere thanks to the Hon. Judge Girouard, of the Supreme Court, for allowing her to take from his valuable history, "Lake St. Louis" and "Supplement," the most interesting information in this paper.

February 8th, 1907.

The Soulanges Canal.

To understand the importance of our present great system of St. Lawrence canals, I have endeavored to trace through history the increasing utility of the St. Lawrence route, and have also endeavoured to give a slight historical sequence of events relating to the St. Lawrence rapids.

Aeons ago as an island lying in a tepid waste of waters was the north-eastern part of North America. The expanse of Labrador, the Laurentian Hills, the rugged wilderness bounded by Hudson's Bay and Lakes Huron and Superior, and a strip running northward to the Mackenzie and Arctic Ocean, and north-eastwards, was a rocky barrenness of land. These were the archæn rocks, the oldest in the world, the backbone of the western hemisphere. Thus here we find traces of the oldest civilizations although involved in myth and legend. We find them in the queer-shaped hill of the "Mound Builders," in the Chinese legend of "Fusang" or Mexico, and then in the "sagas" of the Norse, which tell that Lief and Ericson and Thoraldson visited the eastern coast of Canada, although now no longer regarded as mere legend. In our own Indians we trace the Mongolian.

Then came many explorers, to the south of North America, Columbus and others of great fame. But the Cabots, under charter from Henry VII. first discovered what is now Canada. Following the Cabots came the Portugese Cortereal in 1500, Denis of Honfleur in 1506, and Verrazzano in 1524, who annexed the territory from Carolina to the Gulf of the St. Lawrence to the crown of France. In 1534 comes Jacques Cartier, penetrating farther than any. He made three successive voyages to Canada, penetrating to Stadacona (now Quebec) and Hochelaga (Montreal). It was on his second voyage, that from the mountain which he called Mount Royal, he saw the rapids stretching away to the westward, and the Ottawa, the pathway of the Indians. On his third voyage on September 7th, 1541, an expedition was made up the St. Louis and other rapids of the St. Lawrence, the first visit by the "pale faces." Thus Cartier has written of these rapids and their dangers and toils: "We took counsel to go as far as possible with one of the boats and the other should remain there until we returned, so we doubled the men in the boat so as to beat against the current of the said rapid. And after we had got far from our boat, we found bad bottom and large rocks, and so great a current of water

that it was not possible to pass beyond with one boat." It was then decided to go ashore and to follow up the bank to learn the extent of the rapids, finding a beaten path which the natives had passed in the journeyings up and down the river carrying their canoes. This is from "The Jesuit Relations," a quotation in the "St. Lawrence," a most interesting book.

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to appreciate the contrast between them and these present times of luxury and ease. A study of the early days will make our country and our travels much more interesting for us, as was well remarked by one of the members of this Society at our last meeting.

To illustrate, let us go over these nine miles from Montreal to Lachine.

Leaving Montreal Basin in one of those magnificent steamers plying between Montreal and the Great Lakes, you pass through those five great locks, which are triumphs of engineering skill, and see on either side, as you ascend, the numerous industrial concerns which indicate the present prosperity and ceaseless activity of this Canada of ours, as well as the beautiful residences which replace the hut of the white man and the wigwam of the Indian.

Going through, you will observe at a distance the old stone house, still standing on the very spot where the Sulpicians completed their first canal in 1714.

A little further up, on the River St. Lawrence, near the entrance to the old aqueduct, on the slope of the hill, just before reaching the "King's Post," was built "Fort Cuilleriée" in 1676. This "King's Post" was built by the British Government at the end of the eighteenth century. It consisted of a powder magazine, barracks, sheds and stores, traces of which still remain on the Lower Lachine Road.

As we advance we come to where de La Salle's wooden homestead stood, de La Salle's seigniory being where today the novitiate of the Oblats Fathers is erected, in close proximity to the C.P.R. bridge, which crosses the river to Caughnawaga at that very point.

About two hundred yards West of the toll gate, near the lock, a two-story stone house still stands. Under its roof, in the year 1804, the Irish poet, Thomas Moore, was entertained on his visit to Canada. While there he composed the "Woodpecker," the incident therein referred to having occurred between the house and where is now situated the old canal.

Nearing Lachine and on the spot where the handsome convent of the Sisters of St. Annes now is, once stood the residence of Sir George Simpson, who was the controlling spirit of the fur trade in the North-West. It was here that in August, 1860, he entertained His Royal Highness the Prince of Wales (today our beloved King.)

Near the wharf there was built in 1670 "Fort Rolland," and a little further West, in 1668, "Fort La Presentation," near the pot where today stands the Church of England at Dorval.

We have reached Lachine, which is an important town, with handsome residences, several beautiful churches, religious institutions, and large manufactures, including the Dominion Bridge Company, also the Dominion Wire Company. Still, this pretty town, with all its charms, cannot prevent one's thoughts from drifting back to the days of the massacre, when during the night of the 4th of August, 1689, fifteen hundred Iroquois crossed Lake St. Louis, within a few feet of "Fort La Presentation." Not daring to attack the fort, they silently landed on the Lachine shore, setting fire to every house, killing men, women and children, and making others endure all the atrocities which the fierce instinct of the Iroquois knew so well how to apply.

We have now come to the end of our journey, which, let me presume to hope, has possessed a little interest for the members of this Society.

Great indeed have been the changes from the past. Gone are the war canoes of the Indian; gone are the thatched roofs of the early settlers, as well as their sufferings and privations, and that we have fallen upon more peaceful and better times. May we still continue to enjoy this prosperity and peace under the British flag, which is, everywhere, the symbol of liberty, law and order.

CORDELIA E. RHEAUME.

The writer desires to tender her sincere thanks to the Hon. Judge Girouard, of the Supreme Court, for allowing her to take from his valuable history, "Lake St. Louis" and "Supplement," the most interesting information in this paper.

February 8th, 1907.

The Soulanges Canal.

To understand the importance of our present great system of St. Lawrence canals, I have endeavored to trace through history the increasing utility of the St. Lawrence route, and have also endeavoured to give a slight historical sequence of events relating to the St. Lawrence rapids.

Aeons ago as an island lying in a tepid waste of waters was the north-eastern part of North America. The expanse of Labrador, the Laurentian Hills, the rugged wilderness bounded by Hudson's Bay and Lakes Huron and Superior, and a strip running northward to the Mackenzie and Arctic Ocean, and north-eastwards, was a rocky barrenness of land. These were the archæn rocks, the oldest in the world, the backbone of the western hemisphere. Thus here we find traces of the oldest civilizations although involved in myth and legend. We find them in the queer-shaped hill of the "Mound Builders," in the Chinese legend of "Fusang" or Mexico, and then in the "sagas" of the Norse, which tell that Lief and Ericson and Thoraldson visited the eastern coast of Canada, although now no longer regarded as mere legend. In our own Indians we trace the Mongolian.

Then came many explorers, to the south of North America, Columbus and others of great fame. But the Cabots, under charter from Henry VII. first discovered what is now Canada. Following the Cabots came the Portugese Cortereal in 1500, Denis of Honfleur in 1506, and Verrazzano in 1524, who annexed the territory from Carolina to the Gulf of the St. Lawrence to the crown of France. In 1534 comes Jacques Cartier, penetrating farther than any. He made three successive voyages to Canada, penetrating to Stadacona (now Quebec) and Hochelaga (Montreal). It was on his second voyage, that from the mountain which he called Mount Royal, he saw the rapids stretching away to the westward, and the Ottawa, the pathway of the Indians. On his third voyage on September 7th, 1541, an expedition was made up the St. Louis and other rapids of the St. Lawrence, the first visit by the "pale faces." Thus Cartier has written of these rapids and their dangers and toils: "We took counsel to go as far as possible with one of the boats and the other should remain there until we returned, so we doubled the men in the boat so as to beat against the current of the said rapid. And after we had got far from our boat, we found bad bottom and large rocks, and so great a current of water

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after its construction this route became more frequented, the dangers of navigation were more noticeable. The fur trader and explorer Joliet, 1673, after his successful return from the discovery of the Mississippi, in company with the Missionary Marquette, lost all his papers in the rapids above Montreal and had to report from memory. Most famous of all the explorers was La Salle. From his Seigneury at Lachine, he voyaged up the St. Lawrence to Lake Ontario. Here at Fort Cataraqui, with the sanction of his friend, Governor Frontenac, he built a stone fort, calling it Fort Frontenac. The gate still stands, a well-built picturesque gateway bearing the name of La Salle and the date. It is now the gate of the "Tête Du Pont" barracks, Kingston.

Away back in history, the dim beginning of the war between New France and New England was the rivalry of the trade routes, the jealousies of the far trade, the endeavour on the one hand to turn the trade of the northern and western from St. Lawrence to the Hudson, and on the other to prevent it. This rivalry of the two trade routes, the St. Lawrence river versus the Erie and Hudson, is active and energetic to this day.

The great explorers of the time were the Jesuits, and from the "Relations des Jésuites" are the following interesting extracts from a letter of one of them, bearing on the dangers of the St. Lawrence:

"What detracts from this river's utility are the waterfalls and rapids, extending nearly 40 leagues, that is from Montreal to the mouth of Lake Ontario, there being only the two lakes I have mentioned (Lake St. Francis and Lake St. Louis) where navigation is easy. In ascending these rapids it is often necessary to alight from the canoe and walk in the river, whose waters are rather low in such places, especially near the banks. The canoe is grasped with the hand and dragged behind, two men usually sufficing for this. Occasionally one is obliged to run it ashore, and carry it for some time, one man in front and the other behind, the first bearing one end of the canoe on his right shoulder, and the second the other end on his left. . . . It is necessary to land and carry all the baggage through the woods or over high and troublesome rocks, as well as the canoes themselves. This is not done without much work; for there are portages of one, two and three leagues, and for each several trips must be made, no matter how few packages one has. I kept count of the number of portages and found that we carried our canoes thirty-five times and dragged them at least fifty. I sometimes took a hand in helping my savages, but the bottom of the river is so full of stones that I could not walk along, being barefooted." The same writer further says, "to conciliate the savages you must be careful never to make them wait for you in embarking. You must provide yourself with a tinder box or a burning mirror, or with both, to furnish them fire in the day time and to light their pipes, and in the evening when they have to encamp, these little serivces win their hearts. You must try and eat at daybreak, unless you can take your meal with you in the canoe; for the day is very long if you have to pass it without eating. The barbarians eat only at sunrise and sunset when they are on their journeys. . . . To be properly dressed you must have your feet and legs bare; while crossing the rapids you can wear your shoes, even your leggings. . . . . It is not well to ask any questions, nor should you yield to your desire to learn their language. . . . Each one should try at the portages to carry some little thing, according to his strength; however little one carries it greatly pleases the savages, if it be only a kettle. . . . Be careful not to annoy in the canoe with your hat; it would be better to take your night cap; there is no impropriety among the savages."

Amongst the many facts of interest and importance pertaining to this dangerous route the difficulty has been to condense such a multitude of interesting deeds and to choose those more nearly bearing on my subject. Until now I have taken from Roberts' and Bryce's histories and the extracts from the "Jesuit Relations"; later from the two former histories and also from Garneau's and Kingsford's and from Marceau's Early Canals, also out of a little old French book I consulted for the old families of the Soulanges. We see that with the establishment of Fort Frontenac the St. Lawrence becomes the highway from Lake Ontario to Montreal, though the navigation of its rushing, hurling waters is beset with perils and dangers. In the struggles between France and England for the possession of the Great Lakes, the St. Lawrence hinders as well as helps.

After the Treaty of Utrecht in 1713, Acadia, Newfoundland and Hudson's Bay territory were ceded to Britain, but Cape Breton, the great inland lakes, and the two vast waterways, the Mississippi and the great St. Lawrence, remained to the French. When war was formally declared between England and France, Montcalm was sent out with reinforcements in 1756. He endeavoured first to secure the neutrality of the Iroquois during the war. The capture of Fort Oswego was resolved upon, partly to please the Iroquois, and partly as it interfered with the St. Lawrence route to Lake Ontario, and also was a menace to Fort Frontenac. But Montcalm viewed the undertaking with disquietude. From part of a letter he wrote after the capture of Oswego, one notes the difficulties to be encountered. He writes:

"The object which is in my view by my passage to Frontenac appears to me possible enough in a military sense, if all the details be well combined, but I shall set out to effect it without being assured or convinced. There are no routes other than rivers full of rapids and cataracts, or lakes to navigate so storm-vexed as to be often impassable by batteaux."

In August, 1760, General Amherst descended the river, to bar the way for the French as they intended to retreat to Detroit and from thence to Louisiana. The passage of the rapids was dangerous in the extreme; while attempting to navigate "The Cedars" he lost 64 barges and 88 men, but driving La Corne and his 900 men before him he arrived at Lachine and proceeded to invest Montreal. And the case of the French was desperate when Montreal also capitulated Sept. 8th, 1760, Quebec having fallen.

In the war of the Independence, the St. Lawrence rapids play a much more important part than heretofore in history. The siege of Quebec by the Congress troops under Arnold, having been relieved by the arrival of the British ships, a few weeks later a band of Regulars and Indians descending the rapids from Schenectady and other western

forts to help in the defence of Canada, fought and defeated a body of Americans (400 in number) at "The Cedars" on the St. Lawrence in May, 1776. This party of Canadians under Foster left Ogdensburg, then Oswegatchie, to descend the St. Lawrence. They encamped on May 16th at the western end of Lake St. Francis, then they heard of a strong force of the enemy posted at "The Cedars." Next they pitched camp at River Beaudette and there received intelligence that the Congress troops had been drived from before Quebec and Montgomery slain. This put heart into the Indians. When the little force arrived at the head of the Coteau rapids, they divided, some fearing to descend them so late at night. They rejoined forces in the morning at the fort, in the quiet waters below. They voyaged to within three miles of "The Cedars," where, placing their canoes and batteaux in safety,they landed. The main body advanced towards "The Cedars," the Indians going forward to scout. The post of Major Butterfield with a strong body of 300 Americans was at the Cedars, overlooking the rapids of that name between Lake St. Francis and Lake St. Louis. Foster demanded an immediate surrender, and pointed out that with his limited number of regulars he might not be able to control his Indians if it was refused. Butterfield asked to be allowed to march out with their arms. This was denied and the fight began. Word came that at Quinze Chênes, now Vaudreuil, American reinforcements had arrived under Major Sherburne (Quinze Chênes was the name of a little river which flowed by the old manor house of Vaudreuil; it has become Quinze Chiens, and now is the name of the Vaudreuil road, which in my humble opinion is more appropriate, though Quinze is too small a number).

De Montigny was ordered with thirty French-Canadian to harass and intercept Sherburne. In the meanwhile Butterfield surrendered and Foster, though with difficulty, prevented the Indians from in any way ill-treating the prisoners. Kingsford lays great stress on this, as the Americans had reported that the prisoners were cruelly treated and some murdered. But the historian asserts that there was no cruelty and that they were treated with kindness. I have condensed the account of the above fight from Kingsford's fuller details. The following information is also culled from him. Another body of the Congress troops coming to relieve Butterfield were encountered by De Lorimer; they surrendered themselves to the latter after a brief struggle. On the 21st, Foster marched from The Cedars with his prisoners to Quinze Chênes, crossed the Ottawa, and deposited them in security at St. Anne's and the Two Mountains. Returning to Quinze Chênes he fortified himself at the post here. Later Arnold essayed to attack him,

but the stronghold appeared too formidable and his baggage was delayed by the rapids at Ile Perrot, so the attack came to nothing. This was during Sir Guy Carleton's good governorship. He resigned in 1777, and was succeeded by General Haldimand, a harsh, stern man, but one who did much for Canada. Under his administration the citidal at Quebec was designed, the gardens at Quebec laid out and the chateau of St. Louis constructed. He caused to be constructed the first canals in Canada, not only first in Canada, but first in America. In 1779 the small quartette of canals to overcome the rapids of the St. Lawrence—the Coteau, Cedars, Split Rock, and Cascades—were begun. They were used until the opening of the Beauharnois in 1845. Haldimand wished to improve the navigation to Carleton Island which he had fortified. It commanded the eastern portion of the Lake Ontario, and the approaches to the St. Lawrence. Kingsford says that passengers in that day travelled by canoes, which were easy to carry at the portages, the heavy merchandise, etc., being transported by batteaux,—sturdy boats, measuring eighteen to twenty feet in length, with six feet in breadth, drawing two feet of water, and capable of carrying three tons. Later a Durham boat came into service, but not until after 1812; they were first used in the American navy. It was a flat bottomed boat decked in, round bow, and having a keel and centre-board. But before the advent of the Durham boat the mode of travel was by canoes or batteaux. The freight was carted to Lachine, then it was packed on the batteaux waiting to receive it; they voyaged several batteaux together, the crews giving mutual aid in places of danger. Where the current proved too swift, the men would land, and tow the boats by rope up the fast water or rapids, one or two men remaining on board to guide the boat. The batteaux were sharp at each end and curved upwards; they were also flat-bottomed, probably like the lumber boats on the Ottawa of today. The crew was generally five in number, one to steer, four to row. At times when the wind was favourable they used a square sail—at nightfall they pushed ashore and camped. The Durham boat after 1812 supplanted the batteaux and was used until the Beauharnois canal was opened for traffic.

The first of the little old canals was at Coteau du Lac, the earlier canal hugged the shore. Though considerably grass-grown, it is still noticeable. Formerly it had three locks, with a width of six feet at the gates. In 1801 it was enlarged to nine feet six inches. The lowest canal was a little above Cascades Point, to allow canoes and batteaux to pass "La Fancille," "The Scythe." Here, as now, the river takes a sharp curve and the waters plunge and swirl over their rocky bed between the curving shore of the point and the little wooded

island. This canal had one lock, and in extent was 400 feet. The next of the quartette of canals was at the Trou du Moulin, near an old strongly-built mill, now in ruins but most picturesque. It formerly belonged to the Baron de Longeuil, one of the old distinguished families of the Soulanges. This canal was a cut of 200 feet and had no locks; it was cut through a jutting rock, or the bed of the river. Then came one to overcome the difficulties of the "Split Rock" rapids. Two huge boulders jut out into the swirling, hurling rapids and here is a lock built between them. The iron is still penetrating these rocks, but it looks small and inadequate to our eyes—and one realizes the dangers the brave boatman had to contend with in the rapids to attain even that slight aid to navigation. The most important was at Coteau du Lac, which I have already described. It passed close by the old English fort. The four canals made a total length of 1,700 feet and five locks. They were begun in 1779 and completed in 1783 under Captain Twiss, a name with which we also associate our first clocks. Many of the records of the Royal Engineers are to be found at the Archives.

Before many years had passed the ice shove of every spring so damaged the lower canal locks that a remedy had to be found. Colonel Gother Mann, R.E., proposed enlarging the opening of the gates of the locks at Coteau du Lac and Split Rock from 6 feet 6 inches and giving them a greater depth of 1 foot 6 inches—he also proposed to replace the canals of the "Trou du Moulin" and the "Fancille" by one canal. This took four years, and was only accomplished in 1805. This information is from Marceau's report at the Society of Civil Engineers. That canal is still to be seen, and it seems incredible that it could be of much service, so small and insignificant does it appear, with its tiny locks, and little wooden gates, no larger than many a farm-yard gate. Standing by the edge of the primitive canal and watching the bulrushes and wild spirea nodding in the summer breeze, one is transported into such an old and peaceful world as one thinks of the picturesque "batteaux" with their barrels of flour, sugar and other general merchandise, passing from the great dangers and toils of the foaming turbulence of the "La Fancille" to "this haven where they would be." Then—a thundering booming of a lake propeller or "ocean tramp" recalls one to present times, and there—not many yards away, and crossing this old-time moat, is the Soulanges, one of the finest canals of the day. Instead of 1,700 feet we have fourteen miles, and instead of a depth of four feet we have sixteen feet. Fourteen miles of a beautiful artificial water-way, swiftly curving as the river curves, running through a flat checker-board country, with anon a beautiful

peep of a mignificent river, of glorious rapids and the distant Adirondacks.

But to go back to the time of our earliest canals, it was in 1784 that a band of the U.E. Loyalists, whom many of us proudly claim as ancestors, struggling up this St. Lawrence from Sorel, met with such difficulties in the rapids. At the "Cedars" and "Long Sault" they were compelled to land and tow their clumsy flat-bottomed boats, heavy laden, up the shallow waters.

In reference to our first canal, looking over some old letters of the Hon. Richard Cartwright, I find the following:

"To His Excellency General Hunter, Kingston, 24th Oct., 1801. . . . A large portion of these articles have been transported to Montreal on rafts of boards and timber and scows, for the boats which transport the merchandise, which we require, no longer suffice for the export of articles of such comparatively great bulk and little value. Of these two modes of transport, that by scows will be in future preferred. . . . These scows have carried to Montreal, and of course could carry to Quebec, from 300 to 400 each, and might have taken 100 more as far as Lachine: but the water having been higher than usual this summer, has made the passage of the Lachine rapids more easy than is to be expected in common seasons. These rapids have been found the principal if not the only material obstruction in the river to the safe and easy conveyance of our produce to Lower Canada. . . . . The improvement of the canals will do much for the transport up, but the transport down is an object equally important, and in this the canals are of no service."

This letter is signed Richard Cartwright.

Then comes a letter from His Excellency General Hunter. It is as follows:

"Quebec, 24th Nov., 1801.

"I lost no time upon the receipt of your letter in ordering a careful examination of the Lachine rapids by Captain Bruyere, Royal Engineers, assisted by two of the best pilots, on the communication between Lachine and Montreal. A copy of Captain Bruyere's report to Colonel Mann upon the subject I enclose herewith for your information. Although it appears from Captain Bruyere's report that the removing of rocks and shoals, for the purpose of rendering navigation for loaded boats and rafts more easy and safe, is nearly if not quite impracticable, yet the report affords useful hints to all concerned in the construction of rafts, scows, etc. As Colonel Mann will early in the ensuing spring visit the works now carrying on at the "Cascades," I shall direct him to inspect the Lachine Rapids himself." Signed P. Hunter.

Then in a letter to R. Hamilton and signed R. C., Kingston, 14th May, 1806, is the following:

"Dear Sir,—You will be pleased to learn that, notwithstanding the unpracticability stated by Capt. Bruyere, in his report to Colonel Mann, three large rocks which formed so considerable an impediment in the rapids of the Lachine have been blown to pieces and removed; and that by making a dyke of embankment upon the principles stated by you and by Mr. Clark in the summer of 1804, the water was at once raised from ten inches to three feet. All this has been done for £600, and the work has stood the test of one winter . . . and they have besides given the sum of £500, if I recollect aright, for other parts of the river between that and Coteau du Lac."

Between these old canals and the present Soulanges (the finest on the American continent, as it has been called) comes the Beauharnois, the only canal in the St. Lawrence system on the south shore. This canal was commenced in 1842, in June, and completed in 1845. The

first steamer through was the "Albion." The Beauharnois was cut across the land and overcame the rapids of the "Coteau," "Cedars," "Split Rock" and "Cascades," its length being 11½ miles, and having nine locks to overcome a fall of 82½ feet. With great difficulty an entrance was found, nor it is safe yet as I myself, in company with a number of others, nearly lost our lives there a few years ago. Our boat missed the channel, ran on a rock at the head of the rapids, and careened over. Fortunately where another boat would have gone to the bottom, this staunch little craft was able to continue on its way. The steamer "Magnet" was lost there in 1846, after which a dam was constructed which improved matters. On the Beauharnois are the picturesque villages of Melocheville and St. Timothee, and the town of Valleyfield, and a little farther off Beauharnois at the other end.

In travelling in the days before the completion of the canals, passengers drove from Montreal to Lachine by stages, then took a streamboat up Lake St. Louis to Cascades Point, a distance of fifteen miles. At the Cascades, where in building the Soulanges the block-paved floor of the stage coach stable was found intact, there are also the grass-grown foundations of the houses of a considerable village, as well as the ruins of the stone grist-mill, before spoken of. From Cascades there was originally a plank road. These notes are from what one sees and hears at Cascades Point. Here also one sees the Eglantine, our sweet briar, which is most usually found near an old settlement. From Cascades the stage conveyed passengers to Coteau, a steamboat from there transported them to Cornwall. Then one travelled by stage to Dickensons Landing and a steamboat met the stage and took the travellers on to Toronto or intermediate places. In 1843 the first steamer shot the rapids. Two old Indians, "Old Jock," and "Old Pete," were the pilots. This is a most interesting description from an entrancing book in the parliamentary library, which an elderly French gentleman most kindly found for me, as well as others, to aid in writing. This book was "The St. Lawrence," by George Waldo Brown. The following describes how the Indians discovered a passage for large boats through the rapids. He says:

"First a crib was made 40 feet square with pine floats ten feet apart, with stakes ten feet long driven in each square, projecting downwards. When all was ready some Indians were sent to the foot of the rapids and some were stationed in the trees on the side of the rapids. Several Indians towed the crib to the head of the rapids with their canoes and let go of it. Then every Indian watched the course it took as the crib sped its way with the current of the stream. When it reached the foot of the rapids, the crib was turned over and it was found none of the stakes were broken. That was a positive indication that there was enough water to run the "Ontario" through. The Indians then boarded the steamer. Each Indian piloted the "Ontario" as far as he had observed the crib's course. The only white man on board was the engineer, who also received one thousand dollars."

A most remarkable phenomenon of the St. Lawrence is the distinct line where the Ottawa and the St. Lawrence meet at Cascades Point and below, meet but do not join. I have looked over the side of the boat and seen it amber on one side, azure on the other. Fifty miles the brown and blue run side by side, never blending, and as distinct as if there was a transparent barrier between. The dark opaqueness of the Ottawa is clearly outlined against the luminous transparency of the great Cataraqui. Is the Ottawa, the Indian, "the red skin,"? and the St. Lawrence, the blended races?; who meet but cannot mingle, but run in close companionship, "that he who runs may read?" Geologists say that the Ottawa was once the outlet of the Great Lakes.

The present Soulanges represents the old Beauharnois, and is the link in the chain of canals. It was modelled by Mr. Thomas Munro, Mr. Grant being his assistant engineer at Coteau Landing, and Mr. C. R. Coutlee at Cascades Point. Mr. Munro modeled it partly after the Manchester ship canal, but in many ways it is unique, in fact, in many ways it is entirely different from the other Canals, being, as Mr. C. R. Coutlee has said in his paper on the "Soulanges Canal" in the "Engineering News," "an example of matured practice in hydraulic engineering." It connects Lake St. Louis with Lake St. Francis and overcomes the rapids in between, those already spoken of, the Cascades, the Split Rock, the Cedars and the Coteau where first were the first quartette of canals, then that one to replace the two, next the "Beauharnois," now the "Soulanges," a monument of human skill. It has four lift-locks, and a guard lock; the first three locks have the tremendous lift of 23.5 feet, the fourth a lift of 12 feet and the guard lock of 2 feet. It was decided to construct the Soulanges on the north shore of the St. Lawrence, for several reasons; partly as the curve was less, less locks were required, and also on account of the presence of quicksands on the south shore. The banks along the upper level, 11 miles in length, are built three feet higher than high water in Lake St. Francis, so that the guard lock can be left open if necessary. This canal was carried over three rivers, the Delisle, River Rough, and River à la Graise, which are carried under it in cast-iron pipes, ten feet in diameter, set in concrete. The three locks at Cascades Point have each a lift of 23½ feet. There is a power house at River à la Graise, where electricity is generated for both lighting the canal and operating gates, valves and bridges. The lights are closer than the ordinary city street light, being of the same power, and nowhere more than 160 yards apart, and clustered at the locks. Boats can pass up and

down this canal as easily by night as by day. The dimensions of the locks are 260 feet long by 46 feet wide and the water is fifteen feet on the sills. The canal is beautifully finished with sodding, closely cut, gravelled paths, and macadamized roads, and trees are planted on the north side. The bridges are graceful in design and are painted white—as in railways they paint in red, so in canals white is used. At the head of the Soulanges is the village of Coteau Landing, of about 800 souls. Here the country is flat, showing that once Lake Francis was vastly wider, many centuries ago in all possibility joining the Ottawa. Lake St. Francis is famous for its beautiful sunsets; on the river the captains call it "The Lake of Sunsets." One of the most beautiful sights is to watch the breaking of the ice in the spring, from the Canada Atlantic bridge, as it plunges down the tossing, heaving waters, and piles up on the shore. A sunset on the breaking ice is magnificent. The setting sun illumines the floating ice fields in a prismatic opalesence, fading away in colours of mauve and blue in the near distance, and in the far background the violet range of the far-off Adirondacks. The sun descending, a rose-flush aslant the snow widens and deepens and fades into silence and stillness and shadow.

Coteau du Lac is quaintly charming, and French as it was, with its church, its convent, its seigneury. The last is seen from the river, a peep as the boat flies past on the swift current, a peep of a stone manor-house, trees, terraced walks, and trellised arbors, a most delightful glimpse. It is the Seigneury de Beaujeu. The family de Soulanges, which has left its name to the Seigneury today owned by the de Beaujeus, belongs to the oldest noblesse. They have left that name to the county also. The de Soulanges originally came from France. In 1702 a grant of land at Cascades Point was given to Pierre Jacques de Joybert, Chevalier de Soulanges, in recognition of services, a seigneury which Mdle. Genevieve de Soulanges passed to the noble house of de Beaujeu by her marriage. The de Beaujeus, also of the French nobility, came from France the end of the 16th century, a century and a half later they intermarried with the de Longeuils—a third of the noble families of Soulanges. It was Daniel Hyacinth de Beaujeu who was the hero of the terrible defeat of General Braddock at the Monongahela. De Beaujeu met a soldier's death, early in the fight, though it was through his leadership chiefly that the French scored such a victory. At Cascades Point and towards Vaudreuil was the land belonging to the Seigneury de Longeuil. Charles le Moyne was the founder of his noble house and his four celebrated sons, de Longeuil, d'Iberville, Chateauguay and de Bienville. Baron de

Longeuil succeeded his father as first grantee, in 1676, though the original seigneury was at Chambly. The title is now Grant de Longeuil, it having passed to the female side about 1810, there being no male heirs. All along the Soulanges, there is a sadness, the loss of a vanished greatness in every turn. Coteau Landing, where once the trains were ferried across to the southern lines, was a prosperous town of French and English people. Here where were many beautiful houses and gay doings, parties from Montreal, dances and joyousness, now is a dwindling village, poor and careless. "The Cedars" and Coteau du Lac have changed little, but the English fort is deserted and the English graveyard is peopled by a vanished greatness. Here, too, the village of Cascades is gone with the fleeting time, but the river—the great river is the same—changeless is that mighty stream, with its vast volume, its great waters, tumbling and plunging over its rocky bed. And how many tales, how many wrecks and deaths it could reveal, tales of "battle and murder and sudden death," of lives mysteriously reft by an unseen fate. Most beautiful are these lakes and cataracts, once the grand Cataraqui, now the glorious St. Lawrence, written and sung by many. In ages to come will she be more glorious or will her sister the Ottawa be her rival as of old,—the rivalry of the blue and the brown whose waters will not blend? But who can fortell? None have loved this river more than the Irish poet in whose words I close:

"I dreamed not then that ere the rolling year
Had filled its circle, I should wander here
In musing awe; should tread this wondrous world,
See all its store of inland waters hurled
In one vast volume down Niagara's steep,
Or calm, behold them in transparent sleep,
Where the blue hills of old Toronto shed
Their evening shadows o'er Ontario's bed;
Should trace the grand Cadaracqui and glide
Down the white rapids of his lordly tide,
Through massy woods, 'mid islets flowering fair
And blooming glades, where the first sinful pair
For consolation might have weeping trod,
When banished from the garden of their God."

MADELINE L. MATHESON.

March 8th, 1907.

Notes from Bryce's History of the Canadian People, C. G. Roberts' History, Kingsford's History, Garneau's History, "The St. Lawrence," by George Waldo Brown, "Relations of the Jesuits," "Ancient Families," "Marceau's report at the Society of Civil Engineers, C. R. Coutlee's "Soulanges Canal" in "The Engineering News," and from notes of A. J. Matheson, Kingsford's "Early Canals," "Life and Letters of the Hon. R. D. Cartwright," and a quotation from Moore.

Origin of the Cornwall and Williamsburg Canals.

The Cornwall Canal is situated on the North Shore of the St. Lawrence. It extends from the Town of Cornwall to Dickinson's Landing, a distance of eleven miles, and was built to overcome the "Long Sault" rapid. This rapid is the greatest of the really remarkable ones of the St. Lawrence River, being nine miles long.

The St. Lawrence, or, as they called in formerly, "La Grande Riviere," was the original first route followed by the French explorers on their way to Lake Ontario, called then "Skaniadona" (an Indian name for Ontario). These names are recorded in a map preserved in the Imperial French Library. As Jacques Cartier entered the bay on the 10th of August, 1535, he gave to the river the name of the Saint whose festival is celebrated by the Church on that day, and called it St. Lawrence. The French explorers also gave the names to the other rapids, but I will only mention those in connection with my subject.

The "Long Sault" literally means a long water fall. The next in order is "Rapide Plat," meaning a flat rapid; and the third, "Les Galops," signifies a swift or galloping current. These names have almost lost their original significance by being either mispronounced or mis-spelt. For instance, you will hear generally, or see in print, "The Long Soo" instead of "Le Long Sault," "Rapid du Plate" for "Rapide Plat," "The Galoose" instead of "Les Galops." It is to be regretted that these descriptive names should thus lose their signification.

Smith, in his description of Upper Canada, 1799, describes the navigation of that time as being in a very primitive stage. The river was very dangerous because of its numerous rapids and the entire absence of canals. The only means of conveyance was by canoes, or batteaux. The batteaux were about thirty feet long, flat at stern and bow. The crew consisted of a captain and five or six men, who pushed the boat up the stream with long wooden poles, whose points were protected by iron. When the current was too strong for them to make headway, some of the men would go on shore and tow the boat up with a rope, two remaining on board to steer and keep her off the shore. The captain stood in the stern and steered with a large paddle. Each batteaux had a moveable mast and a square sail.

This mode of navigation continued till 1809, when the Durham boat came from the Mohawk River. It was somewhat larger and more powerful than the batteaux, and to a certain extent supplanted it, as a means of conveyance. The bow of the Durham boat was round and the stern square. It was steered with a long rudder, had a stationary mast, with a main sail, jib and top sail, and it was fitted with a slip keel or centre board.

The mode of conveying merchandise from Montreal at that time, was by cartage as far as Lachine, thence by boat to Kingston, which was then the head of the boat service. The goods were then transhipped into schooners for transport up through the lakes. Very small canals had been built to overcome the worst part of the "Long Sault" and "Galops" rapids. The boats were towed by oxen or horses, the goods being first unloaded and carted to the head of the rapid.

The lots in the front concessions were surveyed into narrow strips, in order to secure a water frontage for as many as possible, because there was then no other means of transit than by water. Most persons going to Montreal from Cornwall took passage on batteaux in preference to driving. The traveller would have to wait at the river bank until a batteaux hove in sight, when he was paddled out in a canoe to meet it. A bargain was struck with the captain, and the traveller was then made as comfortble as the means of the boat crew would allow. There were no berths and each one was obliged to provide his blankets and food. The batteaux were manned by French-Canadians, and it was both picturesque and pleasant to hear them sing their songs, as they plied their oars and their boats glided down the river.

Caniff, in his History, relates an account of the experience of a clergyman crossing the St. Lawrence from St .Regis (an Indian settlement) in 1811. To use the clergyman's words, he says: "We crossed the St. Lawrence in a most romantic style. We hired four Indians to paddle us over. They lashed three canoes together and put our horses in them, their fore feet in one canoe and their hind feet in another. It certainly was a very singular sight. They were to take us over for three dollars, as the distance was nearly three miles; but when reaching Cornwall the Indians claimed an extra dollar, saying that they could not easily divide three into four. This was cheerfully given, and we were only too happy to have reached shore safely."

In 1824-1825 a small boat was placed between Cornwall and Coteau du Lac. In 1828-1829 the next steamboat was the "Neptune." The steamboats of the olden days were very different from those now in use. They had no saloons or cabins on deck for passengers. The gentlemen's and ladies' cabins were both below the deck, the latter

being in a small apartment at the stern of the boat. The passengers' meals were served in the gentlemen's cabin.

In 1830 the steamboat "Iroquois" began to ply between Prescott and Dickinson's Landing. She was replaced in 1832 by the "Dolphin," a larger and more commodious boat. The use of these boats did away with the stage drives between Prescott and Dickinson's Landing, leaving only twelve miles of a drive to Cornwall.

As far back as 1817, the Governor of Upper Canada, in his speech at the opening of the Legislature, called the attention of Parliament to the important question of navigation below Prescott. In 1818 a Joint Commission was appointed by the Governments of Upper and Lower Canada, which commission reported in favour of improvement. The question, however, remained in abeyance, and it was not till the 13th of February, 1833, that the improvement of navigation was authorized by the Statute 3 William IV, Chap 18, under which a sum of £70,000 was to be raised by a loan, not exceeding five per cent., for that purpose, and the following gentlemen were appointed Commissioners to carry the Act into effect: The Hon. Thomas Clark, Hon. Judge Hamilton, Philip VanKoughnet, Jonas Jones, Hiram Norton, George Longley and Peter Shaver. The Act directed that the improvement should begin and be finished between the head of the "Long Sault" and Cornwall, in the Eastern district, before any money could be laid out for the improvements in any other parts of the River St. Lawrence. The Commissioners entered at once upon their duties, caused further surveys to be made and adopted the line in which the canal now runs.

The services of Mr. J. B. Mills, Royal Engineer, were secured. In December of the same year, Mr. J. B. Mills made the report of the first survey to the Board of Commissioners, to ascertain whether it was practicable to improve the navigation of the St. Lawrence in such a manner as to accommodate steamboats and other vessels, by means of one or more canals, between Montreal and Prescott. He says in his report: "The estimated distance between Montreal and Prescott is 135 miles; 103⅝ miles is good for steam navigation, and 31⅜ miles needs improvement, of which 15½ miles is in the Upper Province and 15⅞ miles in the Lower." (Montreal, Dec. 3rd, 1833).

In another report, Mr. Mills says: "The St. Lawrence is opened two or three weeks earlier in the Spring and Fall than the Ottawa. The St. Lawrence passing through a more Southern latitude, these two or three weeks in Spring and Fall are the most important in the whole year for navigation traffic."

(I have transcribed the above Reports from the original manu-

script, kindly shown me by Dr. Doughty, Dominion Archivist, at the Archives.)

The first sod was turned by Chief Justice Robinson in the Autumn of 1834, at a spot near the mouth of the old lock. Twenty-six contractors were awarded different sections. I will mention only a few: Robert and Wm. Hervey, Charles Kerr, Jas. Rogers, Jas. Dixon, Jas. Crawford, and Thompson, Simms, Fraser, and others. The engineers in charge were: Mr. J. B. Mills, Royal Engineer, and Mr. Benjamin Wright, of New York, as Consulting Engineer.

These gentlemen determined on the dimensions of the canal as follows: Length, 11½ miles. Breadth at bottom, 100 feet; breadth at top, 150 feet. Depth of water on sills, 9 feet. Number of locks 7. Length of lock, 200 feet; width, 45 feet. Total rise in lockage, 48 feet.

In March, 1836, Mr. Mills resigned in consequence of a disagreement between the Commissioners and himself, and Captain Philpotts, Royal Engineer, succeeded him.

Work was suspended in 1837, owing to the embarrassed state of Provincial finances, as well as the Rebellion, and was not resumed till after the Act uniting Upper and Lower Canada in 1841.

The canal was not completed until 1842, when it was opened for navigation. The steamboat "Highlander' was the first of the mail boats that passed up the canal.

The postal service in the newly settled part of Canada did not afford much facility for correspondence at that time. The carrying of letters by private individuals was punished by a fine, as it diminished the public revenue. Occasionally an order would be issued, warning the public, but notwithstanding this, friends would entrust their letters to parties who were travelling to places to which these letters were addressed, but in this primitive way they did not always reach their destination. Pringle, in his "History of Lunenburgh," says: "When the old English Church in Cornwall was demolished, they found under one of the pews two letters that had been entrusted, sixty years previously, to a gentleman to be delivered to friends in Quebec. The high rate of postage had no doubt a great deal to do with the persistency of the people in sending their letters by friends." At that time the management of the Post Office in Canada was under the control of the Imperial Government, and remained so till 1850.

After the canal was opened for navigation, the people of the town found that having no access to the river except through the culvert, was intolerable. Petitions were sent to the Board of Public Works. The Hon. H. H. Killaly, President of the Board, came to Cornwall,

and after an examination consented to build a bridge, which was completed in 1843.

The Cornwall Canal has had two periods of enlargement. In 1876, a new cut was made and two new locks were built South of the town, and completed in 1882. Between 1884 and 1903, the second period of enlargement took place, when the canal assumed the following dimensions: Length, 11 miles. Number of locks, 6. Dimensions of locks, 270 feet long by 45 wide. Total rise in lockage 48 feet. Depth of water on sills, 14 feet. Breadth of canal at the bottom, 100 feet. Breadth of canal at water surface, 164 feet.

The equipment of the locks with electrical machinery was completed also in 1903. There are 230 arc lights situated along the bank of the canal; they are located 400 feet apart, which makes navigation at night as easy and pleasant as in day time. The equipment for opening and closing the gates, as well as the bridges, is operated by electricity. The hundreds of maple, elm, willow and birch trees on the South side, and the brilliant lights on the canal banks, make a decided contrast with the days of the origin of its construction.

The cost of the Cornwall Canal has been $6,963,299.

Above the Town of Cornwall the New York & Ottawa Railway bridge may be seen. This is the only bridge spanning the St. Lawrence, which joins the United States to Canada.

The trip Westbound from Cornwall to Prescott by canal, gives a magnificent view of the river and rapids on the left, as well as numerous islands, and on the right is a beautiful landscape dotted with so many pretty villages, towns, and most charming and costly residences.

The Williamsburg Canals.

Williamsburg was named after William Henry, Duke of Clarence, who in 1831 ascended the Throne of England as William IV. He visited Canada in 1787.

These canals are situated on the North shore of the River St. Lawrence, and were constructed chiefly to overcome the "Galops" rapids and others of less importance, as well as certain stretches of swift water. Although called collectively the Williamsburg Canals, they are situated in three different counties—Stormont, Dundas and Grenville.

The first of the series, in ascending order, is Farran's Point, about four and a half miles West of Dickinson's Landing, the head of the Cornwall Canal. This canal was first built in 1847 for nine foot navigation. In 1897, a contract for enlargement was given, which was completed in October, 1902. The dimensions now are: Length of canal, 1½ miles. Number of locks, 1. Length of lock, 800 feet, by 50 wide. Total rise in lockage, 4 feet. Depth of water on sills, 14 feet. Breadth of canal at bottom, 90 feet. Breadth of canal at water surface, 154 feet. This canal was extended to Empey's Bay.

Between Farran's Point and "Rapide Plat," or Morrisburg Canal, there is on the shore to the right as you ascend, a grey stone monument, which commemorates the Battle of Crysler's Farm. May I be here permitted a digression and allowed to recall the memory of those heroes of the Revolution of 1812-1813, who gave up their lives in defence of their country? It was on that very spot that on the 11th of November, 1813, the Battle of Crysler's Farm was fought between the British force of about 900 men under Colonel Morrison, and a portion of Wilkinson's army, between 2,000 and 3,000 strong, under General Covington. The British gained a complete and signal victory, and the Americans retreated with a loss of about 93 killed, among whom was General Covington, and 237 wounded. The victory at Crysler's Farm over Wilkinson's army, and that at Chateauguay under de Salaberry over General Hampton's force, completely broke up the well-conceived plan of the Americans for the capture of Montreal.

The second of the series is "Rapide Plat." This canal is situated about nine and a half miles West of Farran's Point, and extends from the pretty town of Morrisburg to Flagg's Bay, almost opposite Ogden's Island—(an American island, noted for having been the scene of several skirmishes during the war of 1812-1814). The first surveys of "Rapide Plat" were made in 1843; the works began in 1844 and were completed in 1847. This canal was intended for vessels drawing nine feet of water, and the enlargement to the 14 foot draught was commenced in 1884. The building of a new lock was completed in 1904. The dimensions of the canal are: Length, 3¾ miles. Number of locks, 2. Dimensions of locks, 270 feet long by 45 wide. Total rise of lockage, 11½ feet. Depth of water on sills, 14 feet. Breadth of canal at bottom, 80 feet. Breadth of canal at surface of water, 152 feet.

From the head of "Rapide Plat" Canal to Point Iroquois, the distance is a little over four miles. Midway, opposite "Pine Tree Point," is the narrowest part in the whole of the river, from the Gulf of St. Lawrence to Niagara, being only 390 yards wide. One could hardly realize it possible, when travelling by boat and seeing this nar-

row stretch of water, that we are navigating on the largest river of our continent. Opposite Kingston, for instance, the width is 10⅜ miles, from shore to shore. This part I am alluding to includes Wolfe Island.

The third division of the Williamsburg Canal embraces Iroquois and the "Galops." What is now known as the "Galops" Canal was originally built as two separate canals,' with a short distance of navigation between; these were also opened for a nine foot navigation in 1847.

The lower section, called Point Iroquois Canal, commenced at the Village of Iroquois and extended to Presqu' Isle. It was three miles long and had a lockage of five feet seven inches, which overcame the rapid of Iroquois Point. This point is most picturesque and is said to have been a favorite spot with the Indians when holding their councils of war.

When Father Pierre Potier, one of the Jesuit Missionaries, was journeying from Montreal to Detroit in 1744, by canoe, he wrote in his diary the places of interest or landmarks that he passed from the 17th to the 21st of July. He noted that he had camped the night of the 17th at Iroquois Point, and remarked that it was "un bel endroit" —(a beautiful spot).

The upper or Western section, known as the "Galops," commenced at the Village of Cardinal and extended up stream to the head of the "Galops" rapids. It has a lockage of six feet eight inches, and surmounted the Cardinal and the "Galops" rapids.

About ten years after the completion of these canals, they were connected by an embankment, otherwise called the "Junction Canal," built in the river, and other improvements were made, so as to increase the total length of the canal to 7½ miles and the lockage to 14 feet 7 inches.

In 1888 the Government entered into a contract for enlarging the upper entrance, the work consisting of building a new lift-lock, as well as a guard-lock, each 270 feet long by 45 feet wide.

In 1897 work on the enlargement of the Iroquois section was commenced and consisted in building a new entrance channel,two entrance piers, and a "flottila" lock of 800 feet by 50 feet wide, thus deepening and widening the canal for about three and a half miles. An electric cable was also placed under the canal, and the work was completed in 1902.

In 1898 it was decided to widen the entrance to the existing channel, South or towards Adams Island, with a view to eventually increasing the width to 300 feet, which is now completed.

The cost of the Williamsburg Canals is $9,567,077.

The North channel commences about one mile West of the upper entrance of the Galops Canal, and extends in a straight line to Chimney Island, a distance of two and one-third miles.

One of the most romantic incidents in connection with this portion of the St. Lawrence is the story of Chimney Island, which was connected with the French and Indian war with the British in 1760.

It was in August, 1759, that the Marquis de Levis (later the successor of Montcalm), who commanded the French forces from Montreal, westward, ascended the St. Lawrence in order to make a careful inspection of the defences. He examined Fort La Presentation (now Ogdensburg) and found it was not suitable as regards the prevention of the enemy. He accordingly determined to build a much stronger fort on the Island of Orakoninton, an Indian name which de Levis vouches in his journal as meaning "Le Soleil Suspendu," or the "Hanging Sun." De Levis re-named this island "Isle Royale."

Desandrions, the local Militia Engineer, laid out the line of fortification, and work was commenced immediately and prosecuted throughout the winter, and gave the name of "Levis" to the fort.

The command of the fort was given to Pouchot, a very brave and skilful soldier, who had already distinguished himself at Niagara. His forces consisted of 200 strong, 100 militiamen, and several hundred Indians under Abbe Piquet, the celebrated missionary Jesuit from the abandoned post, Fort La Presentation (Ogdensburg), who had removed all their guns and stores to the large island below Orakoninton. Levis had given this island the name of "Ovaratory," in honor of the chief in command.

On the 10th of August, General Amherst embarked his army, composed of 10,000 regular troops and 700 Indians, at Oswego, in an enormous boat and several batteaux, en route to Montreal, and reached the Island of Orakinonton, or "Isle Royale," as de Levis had called it, on the 19th of the same month. He made an attack upon the fort. Pouchot refused to surrender and made a vigorous fight. Amherst was obliged to undertake regular siege operations. On the 22nd the British batteries again opened fire, which was so heavy that Pouchot surrendered on the 25th of August, 1760. Amherst completely destroyed the fort, leaving only the chimney standing.

On the 7th of September, Amherst reached Montreal, and the following day the Marquis of Vaudreuil (then Governor) signed the capitulation, which severed Canada from France.

Only the charred ruins and a solitary chimney is left to mark the spot. The latter has stood for many, many years, as a landmark, giv-

ing to the island upon which it had been erected the name it still bears, "Chimney Island."

This island was purchased a couple of years ago from the Indians by Mr. M. E. Cleveland, contractor for the North Channel and portion of the "Galops" Canal.

There is another island above Brockville, near Gananoque, which also bears the name of "Chimney Island," and for this reason has been confounded more than once by modern historical writers with the "Chimney Island" I have just described.

(These notes are authentic, having been secured from the archives of the Jesuit Order in Montreal, who have in their possession most of the original manuscripts relating to Canada, where their missions were conducted during the French regime).

The present degree of perfection in our canals was not attained at one bound, as they had several periods. The history of each one would require a very extended notice, if the military, political, commercial and financial aspect of the question, as well as the engineering difficulties, were to be considered. Suffice it to say, that our present engineers and explorers are only following in the footsteps of the men of genius and science, who first blazed the pathway to the interior of our country, and made the great St. Lawrence River the highway of our national transportation. The results of their intelligent and patient labor are enjoyed by us today, and we should therefore be proud of them and our common country, which have produced such men.

CORDELIA E. RHEAUME.

January 10th, 1908.

Kingston and Harbour.

The period of two centuries and a quarter, though falling far short of what we consider antiquity in the Old World, constitutes a somewhat venerable age in the one we distinctively style the new. On a continent where the relics of even a centennial antiquity are few and far between, when the oldest trace of European civilization go no farther back than three centuries, the citizens of Kingston may justly claim the honors of age for their loyal old town, whose site during two hundred years,—as Cataraqui, Fort Frontenac or Kingston, has played an important part in the history of Canada, ranking in military importance next to Quebec itself.

It is not easy to call up a mental vision of the Canada of two hundred years ago, since the country we know by that name today, had, save in the natural features of the country, no existence. New France, or Canada, as it was by that time generally known, was little more than a line of scattered settlements along the banks of the St. Lawrence. In order to realize it as it was then, we must sweep away in imagination, the busy and substantial cities of today; the towns and villages—the harbors and shippings—the roads and railways—and conjure up in their stead, a vision of the trackless forest wilderness, haunted by the deer, the wolf, and the beaver, as well as the battle-field of the fierce wandering tribes that waged a no less cruel and destructive warfare with each other and with the wild beasts of the forest.

The relative position of British Columbia must also, in some degree, be reversed in our mental picture, for New France occupied nearly the same territory with our Eastern Canada, while that of the North-eastern portion of the present United States, so far as it had been explored, was claimed by the English and Dutch, and held by their garrisons.

The period at which this story begins, is July, 1673, the 30th year of the rule of Louis XIV, and the 30th after the restoration of the Stuart dynasty—little more than half a century after the "men of the Mayflower" had landed on Plymouth Rock, Boston and New York were little more than villages, and Quebec and Montreal only clusters of log cabins, defended by palisaded forts. On the 12th of July, a date to be remembered by Kingstonians, Count Frontenac, with an escort

of French soldiers, emerged from among the Thousand Islands, approached Kingston, skimming across the blue waters of its harbor by means of canoes, gaily painted batteaux, and large war canoes, rendered conspicuous by the imposing figures in glittering French uniforms. But why had the dignified French Viceroy undertaken, with such a retinue, so expensive and tedious a voyage from the rock of Quebec to the outlet of Lake Ontario,—an almost unknown point in the unbroken wilderness. For an answer we need only recall the circumstances in which the gallant "Pioneers of France in the New World" had been for more than a quarter of a century struggling with adverse forces of nature and human savagery in order to establish the colony of New France on a stable foundation.

In the 17th century Spain, New France and Great Britain, between the latter more especially, competition was naturally keen for the sinews of ware, the fur trade, then the chief mainstay of the Northern Colony.

The ferocious Iroquois—or Five Nations—had their position on the watershed of the Northflowing waters. In 1670 it was suggested to Louis XIV the expediency of planting two out-posts, one at the North and one at the South of Lake Ontario, which might serve as a check on the Iroquois, and a depot for fur trading. The site chosen is that now occupied by the city of Kingston, at "the meeting of the waters," where the St. Lawrence emerges from Lake Ontario, and where the winding Cataraqui joins and swells its broader stream—had previously attracted the pioneer explorers.

The early history of the "Limestone City" is connected with the name of Robert Cavalier de La Salle. In 1666, animated with a passion for discovery, he longed to find the long dreamed of waterway through to remote Cathay and the riches of the Orient. The accounts received from the Indians of the course to the Mississippi, began to regard it as the true waterway to the East, and it is quite naturally supposed that the fortified depot at the Eastern end of Lake Ontario originated with him.

When Count Frontenac succeeded de Courcelles in the government of Canada he was much pleased with the enterprise of La Salle, and sent him in advance to make a final reconnaisance of a site for the new outpost. At Montreal he presented an imposing site, where he was received in due state.

Passing Lachine, and the Long Sault, where the men stood waist deep in water, and Frontenac having passed many sleepless nights from anxiety lest water should find its way into the batteaux and spoil the biscuits, the staple article of food, the head of the rapids was

reached, where a message from La Salle announced that the mouth of the Cataraqui was where the approaching conference with the Indians should be held. The Abbe D'Urfe went in advance to notify the Indians of the approach of Frontenac. As the flotilla neared the promotory now crown by the British, Fort Henry, a canoe with Iroquois chiefs was seen to arrive to escort the strangers to the appointed rendezvous.. Around them a spacious harbor stretched, cut off from Lake Ontario by a chain of islands, joined by the narrow Cataraqui, winding its way out from a chain of lakes, cascades and still rivers, now made navigable by the Rideau Canal. The meeting took place, the Governor saluted, and the respect of all paid to him, the Indians testified evidence of joy and confidence and the obligation they were under to him, for sparing them the trouble of going further, and for receiving their submission at the River Katarakoui. After Count Frontenac replied to their civilities, they preceded him as guides and conducted him into a bay which forms one of the most beautiful and agreeable in the world. The exact spot where this important conference was held between the Indians and French, was Mississagua Point, near the foot of the present Earl Street. Frontenac won favor and confidence with the Indians, whom he exhorted to embrace the Christian religion, which he doubtless earnestly desired. He also asked that they should entrust him with some of their children, to be educated at Quebec—eventually a few were sent to be educated at Quebec—the girls to the Ursuline Convent, the boys taken into the household of the Governor himself.

The new outpost soon demonstrated its usefulness, and even the Montreal merchants became reconciled when they found that during the following season it brought a large number of Iroquois down the St. Lawrence to dispose of their furs. In 1673, Louis Joliet, with the devoted Pére Marquette, who had discovered the Mississippi, followed its course and turned northward to tell their tale of success. This sustained La Salle still more strongly in his theory of explorations of the great mysterious river which he had, however, been forestalled. It was then quite uncertain whether the rivers flowed into the Gulf of Mexico, or the California Gulf. In the latter case, it would furnish a waterway to the Orient; in the former, a channel by which the varied wealth of the Western continent could be easily conveyed to France, and to establish this rule, and settle this question, all his energies were applied. La Salle visited France in order to obtain a patent of nobility and for the command of the New Fort in honor of its founder. The royal grant is dated May, 1675, and not only conferred upon him the command of the Fort and four

leagues adjacent, but also two large islands opposite, respectively Wolfe and Amherst Islands, with right of hunting and fishing on said lands and adjoining waters. Certain conditions were involved —that La Salle was to repay the sum expended in the erection of the Fort, and rebuild in stone, and maintain a sufficient garrison equal to that at Montreal; to employ twenty men for ten years in clearing and improving his land. In two years time the fort of logs was replaced by one of stone. It stood almost on the same ground as is now occupied by the Téte-de-Pont Barracks, the present home of B. Battery.

Clouds arose on the horizon, and as a result of jealousy on the part of the merchants at Montreal and Quebec, in which Bishop Lavalle became involved, was forced to visit the French Court once more to lay a second petition before Colbert. As a direct result, when he returned to New France, he secured men and material required for the building and equipment of a vessel intended to sail down the Mississippi to the Gulf of Mexico. In his brave undertaking he enlisted the service of Henri de Lonti, who was destined to share the lot of his leader through many vicissitudes, loyal and faithful to the last. The following autumn and winter was spent at the mouth of the Niagara in building the new vessel, and of a fortified outpost two miles above the great Cataract, which he and Hennepin visited for the first time with a "fearful joy," which seemed more awe than admiration.

It would be too long a digression to follow La Salle through his weary wanderings of the next eight years, or to recount his succession of misfortunes, beginning with the loss of his new-built vessel, The Griffin, with her valuable cargo of furs, in the stormy waters of Lake Huron, while pushing westward, building forts as he went. After two perilous journeys, chiefly on foot, from the Illinois to Fort Frontenac, he succeeded in exploring the Mississippi to the sea, taking possession of new territory in the name of Louis XIV., naming it after him, Louisana, and in his anxiety to find the mouth of this great river, missed his goal, passing it unconsciously by some three hundred miles, and landed his band of settlers on the coast of Texas. Having lost three vessels, he toiled on for two years to retrace his way to Canada, and on his third, and last attempt, he perished by the shot of a mutinous follower.

It would lead too far from the main subject to follow the eventful history of New France during the troubled years that followed, but warfare and raid was desperate between settlers and savages, public

peace was much disturbed, and the cruelties perpetrated by the former were sometimes as base as those of the latter.

Referring to the beautiful stretch of water, the Harbor at Kingston, much may be said, forming as it does a giant gateway to the St. Lawrence River, the Thousand Islands, Bay of Quinte, Rideau River and the Upper Ottawa, constituting one of Canada's most picturesque and commercial avenues. Of the soundings of this beautiful harbor little appears to be recorded in early days. From time to time the pages of historic Kingston refer to certain shoals being dredged, namely, one at Port Frederick and the Carruthers' Shoal, the work of which was performed as recently as 1874, '75 and '76. The total cost of the entire dredging of the harbor since Confederation to 1882 amounted to $14,814.40. The latter shoal was dredged in order to obtain thirteen feet at lowest stage of water. In 1825 the harbors along the shore of Lake Ontario are stated to have been far from complete, merely affording convenient landing in case of storms. In a report of 1815 it says that a government wharf at Kingston was nearly destroyed by high water, and its restoration was promptly recommended. In 1826, proposed reforms and repairs to the fortifications at Kingston were addressed to General Mann, Inspector of Fortifications, also better protection for dockyard, wharf and harbor. Sheltered on one side by Fort Henry, and under the lee of the Royal Military College, lies a little body of water, Navy Bay, reposeful and placid as indeed befits its present service, for it is the graveyard of His Majesty's fleet of 1812, the year in which Kingston was brought to the front, defended by Martello towers and cannons, defending its water front.

An interesting picture of Kingston, by James Grey, shows the harbor unadorned, with its grand facilities of navigation, which are so much enjoyed by tourists and those interested in commerciail walks of life. The view is taken from the parapet of the roadway leading to Fort Henry, which both in earlier and later years has played an important role in connection with the Limestone City. The celebrated fort, overlooking the magnificent harbor, was built in 1818 by the Royal Engineers on the site of the present costly stone pile, which was erected in 1832. In 1820 the barracks were added to the old fort. The time honored Cataraqui bridge was yet undreamed of in 1838, but Navy Bay had a pontoon bridge to connect the military and naval settlements.

A faithful sketch of Kingston Harbor, Navy Bay, and the dock yards in 1830, was made by an ex-cadet named Bayfield, in which

a dock yard bell is shown which looks like a modern gas lamp. It is now in possession of St. Mark's Anglican Church, Barriefield.

In an extract of a letter of instruction given to Lt.-Col. Phillpotts by the Earl of Durham in 1839, he requested that plans be submitted setting forth the requirements of a canal to Montreal, also the position of the Rideau and Ottawa, thus showing that the active and clever men had in embryo in their great minds the construction of works which have since been achieved of necessity.

Among the many valued papers on file concerning the subject under discussion, is a petition addressed, in 1847, to the Governor General, signed by many residents interested in the welfare of Kingston and its surroundings, the purport of which is that lights, buoys, and revolving lights be placed on the harbor side of the inland waters, in order to facilitate and protect those following the sea. It is quaintly worded, breathing an air of real earnestness and sincerity in favor of these much-needed improvements, for which the present and rising generations should feel deeply grateful to the far-seeing early pioneers of this land. The original, and no doubt somewhat crude guides to safety referred to, placed their in position, have given way to more modern works of art, in which electricity plays an important part, but the object of each device remains the same. In a similarly worded petition to the foregoing, addressed the same, in which was asked for a water supply for the city, we find the familiar autograph signatures of John Macdonald, John Mowat, Thomas Kirkpatrick, W. A. Geddes, and many others.

The exact spot where Frontenac and La Salle met was on an extremely rocky ledge, where the locomotive works and the dry dock are now situated. Of the latter piece of public work, which became a necessity in the eighties, the late Major Henry F. Perley was the designer.

In the year 1841, June 15th, the first Parliament of Canada was opened in the City of Kingston, having been selected by the late great Queen Victoria. The privilege was short, the duration being but three years.

The average traveller entering Kingston from the West, by means of the water traffic, is much struck with the grand expanse before him. On the right is to be seen the two beautiful islands already mentioned, Wolfe and Amherst, the latter being twelve miles in length and three in width. On the left, the sight is one of life and animation. Huge buildings, with a mystery surrounding them, are the first to greet the eye, Rockwood Hospital and the Penitentiary, each of which contains enough souls to be called a village; the inmates

of the former enjoy the beautiful waters at this juncture, as a yacht for their use belongs to the Asylum. Further on, in quick succession, follow the spires of churches, colleges, public buildings, and last, but not least, the forts built for the protection of the city, known as Shoal and Mertello towers. Then, Fort Henry on a side hill, commanding a grand sweeping view of Lake Ontario, side by side with one of Canada's finest educational institutions, the Royal Military College.

MARY E. PERLEY.

February, 1908.

The greater part of the information of this paper was secured at the Archives, through the courtesy of Dr. Doughty, Dominion Archivest; also, from notes communicated to the writer by Miss Agnes M. Machae, of Kingston.

The Rideau Canal.

In view of the great interest at present manifested in the development of the great waterways of Canada and the Northern portion of the United States of America, I feel honoured in being selected to prepare the paper on this occasion, upon the subject of the explorations and construction of the Rideau Canal, commenced over eighty years ago, when commercial conditions entered but slightly into the minds of those by whom the scheme was then being promoted, but rather the actual needs of a national system of safe and efficient transportation of both goods and war material and personel in troublous times. It was contemplated more in a strategic and tactical sense than for the utilities of trade into which it subsequently, and even yet, has been found of considerable advantage.

The subject is one affording great interest and in respect of which many interesting episodes of Canadian history might be referred to. However, in the short space afforded for a paper such as the present I am forced to confine my remarks to the collection which I have been able to make of statistical information, in the main, from records unfamiliar to the majority. I may say, that the statistical items with which I now intend dealing, have been taken to a considerable extent from extracts culled from the diary of the late William T. Clegg, formerly holding the office of Paymaster, with the rank of honorary major, during the construction and early period of the operation of the canal by the Imperial Engineers and Ordnance Department, and from a rare and interesting report by Mr. Baillargé, late Deputy Minister of Public Works for Canada. The necessity for the construction of this waterway was materially felt on account of the difficulties experienced in the transportation of troops and supplies by a safe and all British route from the lower St. Lawrence to the upper lakes of Canada during the war with our neighbors on the south, in the years 1812 and 1813. On the declaration of peace, this question was taken up as a matter of Imperial importance, the scheme was definitely decided upon, and steps were taken which resulted in ultimately carrying out the project. Surveyors were appointed and sent out to Canada by the Imperial Government, and plans and specifications were prepared. It was also foreseen that the construction of the proposed canal would prove of great advantage

in opening up the interior of the eastern portion of Upper Canada, now the Province of Ontario, and bringing in settlers to that comparatively unknown and fertile district which has since then developed into the rich and prosperous communities between the lower Ottawa and upper St. Lawrence valleys. It was one of the pet schemes of the late Duke of Wellington, the military hero of our Napoleonic wars, who early saw the material advantages that would inevitably result from interior means of communications that might thus be established. It was not, however, until the month of September, 1826, that the actual work of construction was really undertaken under the superintendence of the late Lieutenant-Colonel John By, then commanding the Royal Engineer and Ordnance Department of the Imperial Army in Canada. He was appointed by the Imperial Government as commanding engineer of canal works in Canada, with orders to communicate directly with the Master-General of Ordnance in England, and the Board of Ordnance, which was to assume direction of the works. Col. By, at that time, gave assurance to the Duke of Wellington, that the desired communication with Lake Ontario would be secured within five years, and this proved to be the case.

The Colonel's working staff, in 1826, consisted of three engineer officers, Captain Bolton, Lieutenants Pooley and Cromie. The civil officers were Captain (afterwards Major) Clegg, as paymaster of the works; one civil engineer, acting as clerk of the works; two clerks, two overseers of the works, one master-carpenter, one master-mason, one master-smith, and two foremen carpenters. The contractors, at Bytown, were Messrs. Thomas Mackay, John Redpath, and Robert Drummond. Mackay and Redpath were connected with the building of the first eight locks, those below the "Sappers' Bridige," in the City of Ottawa, and Drummond with the general works required as preliminary to the object of securing and effectively carrying out the project of canal navigation. In the autumn of 1877, two companies of Royal Engineers arrived from England to be specially employed on the canal works. They were the 7th and 15th companies, commanded by Captains Victor and Savage, with Lieutenants Dennison, Briscoe, Frome, Benjamin and Simon and two Regimental Engineers attached as assistants, namely, Captains Cole and Gale of the Royal Engineers.

In 1828, Lieutenant-Colonel Botelar was sent out from England, as assistant engineer to be in charge of the works at the Kingston end of the line. All the officers mentioned were stationed at depots for the several sections into which the line of canal was divided. The 7th Company of Sappers and Miners was stationed at Newboro', or

what was then known as "The Isthmus" from 1829 to December, 1831, when they received their discharge. They suffered greatly from fever and ague: on account of the opening up of the low swampy ground many of them died from its effects. The 15th, which remained at By-Town, was discharged at the same time.

The stone monuments which marked the boundary lines of the lands required for the route of the canal and augmentations, at necessary places, (which were expropriated in 1827,) were prepared by the Sappers and Miners and were numbered with figures corresponding to those shown upon the plans of the lands so taken. The bridge known as the "Sapper's Bridge", was commenced in the same year, (1827,) and was built of cut limestone, the whole structure being the work of the Sappers and Miners. It was completed in 1830, and was the first finished substantial work at By-Town. It affords communication, much needed, between the upper and lower parts of the town and was, therefore, very highly appreciated by the inhabitants at that time. It was in the year 1827, at a public meeting convened for the purpose, of the Civil Officers of the Department of Engineers and Ordnance and the leading men of the Village which had grown up in the vicinity of the principal works that it was unanimously resolved that its name should be "Bytown" thus naming the future site of the capital of the Dominion of Canada in honour of its enterprising founder, the commanding engineer of the Rideau Canal works.

In the years 1827 and 1828, the wooden bridge connecting the upper part of the town with LeBreton's Flats, was constructed under the superintendence of Lieutenant Pooley of the Royal Engineers, hence its name.

In the autumn of 1827, a circumstance occurred in Bytown which connects us with the memory of a man of world-wide celebrity, the late Sir John Franklin, the Arctic explorer, whose untimely end was, shortly afterwards, sincerely deplored. Sir John and his party, returning from a northwest tour of discovery, arrived in Bytown in October of that year. His unexpected visit was commemorated by the laying of the central stone of the inverted arch of the third lock, (reckoning from the river), amidst much rejoicing. He remained a day and a night, the guest of Colonel By, who treated him most hospitably. The distinguished stranger and his staff were also serenaded by the inhabitants of this new village in the midst of the wilderness, each individual striving his best to do most honour to the occasion.

It was as early at 1814, about the close of the Anglo-American war, that the Imperial Government decided to build the canal, and, in 1815, at the time Colonel Nicholls was commanding the Royal Engin-

eers in Canada that he was commanded to send an officer to report on the practicability of water communication between the lower St. Lawrence and Lake Ontario by way of the Ottawa and Rideau rivers. Captain Jebb was accordingly detailed for the duty. He reported on two routes; one, as subsequently adopted, the other diverging from the Rideau at Irish Creek, a tributary of the Cataraqui river. Captain Jebb reported both routes practicable, but preferred the latter, as being shorter. Nothing was done, however, at the time.

In 1824, Mr. Samuel Clowes, C.E., was appointed to make another survey and recommended the adoption of the present plan.

The Imperial Government held control of this and the other Ordnance canals until the year 1853, when it was, by an Order in Council, taken over by the Provincial Government of United Canada. Later, in 1867, the canals were placed under the control of the Dominion Government as part of the public works where were allotted to the central government at the time of Confederation, and have since continued under that administration.

The stone buildings on either side of the lower locks at Ottawa, and opposite the third, were built in 1827-1828, and were used as offices. The one on the east side for the Royal Engineers and Ordnance Departments, and the other, on the west side, for the commissariat. The barracks were located on the hill, known formerly as "Barrack Hill," just west of the locks, (now the site of those graceful piles of architecture housing the Parliament and Departmental officers of the Dominion of Canada), and consisted of three buildings for the use of the two corps of Sappers and Miners. To the extreme west of this hill and overlooking the upper town and the Falls of the Grand Chaudiere, was erected another large building of stone which was originally intended and used for a hospital, but was, afterwards, utilized as officers' quarters until long after Confederation, when it was used for a time as offices for the engineers engaged in the exploratory surveys of the Canadian Pacific Railway, until it was destroyed by fire on January 16th, 1874. While this building was in possession of the Imperial Government it was occupied, from time to time, by officers of the Royal Engineers and of the line regiments which were always attached under the old system. After the "Trent affair" a number of British regiments were stationed in Canada, and the corps on the Ottawa station also made use of this building for officers' quarters, as far as its capacity permitted. The hill on the east side of the locks was, from the commencement of the works, used for Imperial purposes. There it was that the first cottage was erected in 1826 for the use of the officer in charge of the works and

paymaster. The latter, afterwards built a house on Rideau street, between William and Dalhousie streets, but Major Bolton continued to reside on the hill, which came to be called "The Major's Hill," an appellation it bears to the present day, although much altered from its wild condition, as covered with giant forest trees, when first taken into use, and now embellished and laid out in our beautiful park. Here also was erected a house to be used as quarters for the commandant of engineers and a cottage for Lieutenant Pooley, R.E. They were built similarly of small boulders and moss plastered with clay, the walls being of extraordinary thickness, well plastered with lime on the inside and were found most comfortable as residences at all seasons. They were both destroyed by fire; that occupied by Col. By about 1849, and Lieutenant Pooley's in 1869. A convenient pathway was formed, by order of Colonel By, up the rocky ascent of the brow of the hill from the Engineer's offices to the commandant's quarters. About half-way up this romantic path, was a very fine spring of mineral water, quite medicinal in quality, which was enclosed in blocks of limestone (part of which was still visible in 1870) and which served as a basin to collect and hold the water for the use of the workmen and the passing public. This stream unaccountably left its original course and, in 1870, was completely dry, a slight drip was then, however, observable lower down. The basin was quite filled up with debris constantly falling from the brow of the hill until walled up of recent years at the time of the construction of the railway tracks forming the approaches to the new Royal Alexandra Bridge across the Ottawa river.

In 1829, the canal works were in active progress throughout the whole length of the line and hastening to completion. About the middle of August, 1830, the foundation stone of the eastern pier of the first, the lower or river lock, was laid in the presence of Lord and Lady Aylmer, and the staff, Lady Alymer officiating, with all due ceremony. The laying of this ponderous stone was the most important part of the works performed; it was laid many feet below the level of the Ottawa River, and was protected by a strong coffer-dam. The laying of the stone, a task of no ordinary difficulty, was accomplished successfully and without accident or damage of any kind.

In May, 1832, the first steamer "The Pumper," passed through the Rideau Canal to Kingston, with the military and civil officers and a few of their chosen friends, thus completing the opening of navigation through the works within the five years, according to the assurance given by Colonel By to the Duke of Wellington before the inception of the undertaking.

Colonel By left Canada in September, 1832, Major Bolton taking the command. Major Bolton was succeeded by Colonel Thompson in 1847, followed by Colonel Ford in 1850, and by Colonel Clayton, (the last Imperial superintendent) from 1852 to 1857. The Canal was handed over to the Provincial Government in 1853, and the Canal lands transferred in 1857. All these are now under the control of the Dominion Government.

Captain Alexander of the 42nd Highlanders (from whose "Trans-Atlantic Sketches" we have gained so much useful information) tells us of a visit made by him to Bytown, at which time he was most kindly treated by Colonel By, and he describes the residence of the Commandant, calling it a "cottage ornee, tastefully decorated, with rustic verandahs and trellis work, situated on a high bank overlooking the Ottawa and opposite a lofty promotory on which stood the barracks." He was taken by his host on an excursion up the line of the canal as far as "Merrick's Mills," their party being paddled in canoes by Canadian voyageurs, who (he tells us) were able to do their hundred miles a day on pork and pea-soup, and, moreover, keep this up for weeks together, lightening their labours with the chanting of simple boat-songs.

There are 47 locks between Ottawa and Kingston, at various distances apart. The rise from the River Ottawa to the summit level of Rideau Lake is 283 feet, and the descent into lake Ontario 154 feet, making a total lift for lockages of 437 feet, and, consequently, requiring these 47 locks of 9 feet lift each, and costing six thousand pounds apiece. Comparing this with the Lachine Canal, we find the cost to be for the 9 mile stretch and 7 locks £135,000.

Mr. McTaggart tells us in a report made in 1826, that, after considering the various ways of obviating the difficulties of transportation of stores and troops from the St. Lawrence to the great lakes, in the case of our neighbours to the south causing trouble, the most feasible system was that of connecting a chain of small rivers and lakes that lay between Lake Ontario and the River Ottawa.

The first intention was to have the locks built of the same size as those of the Lachine Canal, 100 feet long by 20 feet in width. After due consideration, however, it was decided, in view of having larger steamers, that it would be wiser and more advantageous to have them made as they now are—140 feet long by 33 feet in width. All this was carried out by the British Government with liberality and economy combined. The work was commenced at the same time throughout the line, each division having a guard of 60 soldiers under a subaltern's command, for the sake of preserving peace and order.

Surgeons were engaged and furnished with medicine for the sick. There were Government stores provided with all kinds of needful provisions and supplies, beds, blankets, caps, mitts, shoes and spirits in plenty—the latter used to counteract that melancholy which was then considered as peculiar to Canada. From the Ottawa River to Black Rapids, the cost of the work was estimated at £87,500; from Black Rapids to Kingston Bay at £98,560, the whole amounting to £486,060.

Captain Alexander in his account of his excursion trip with Col. By up the Rideau route, speaks of steering through the silent wilderness of woods which, in a few years, would doubtless be changed to smiling fields and orchards. Also of seeing the conical bark-covered wigwams of the Indians on the banks of the Rideau River, before which the women, mayhap, would be smoking venison; large canoes lying up-turned on the banks, whilst, in smaller boats, boys could be seen watching under the foliage for the deer to come to the water when, driven by dogs trained for the purpose, a stroke of the paddle on the head would generally secure the prize.

The first locks after we have passed the Sapper's Bridge are at "Hartwell's," a stretch of a couple of miles of naturally beautiful scenery lining the course to this station. The locks are two in number and the rise 22 feet. A mile or so further on is an immense dam, a very clever piece of engineering work, 320 feet long and 45 feet high; also two locks with an ascent of 13 feet. An incident occurred here, which it might be interesting to mention at this point. Some little time after its completion it was discovered to have been leaking for weeks. Col. By had it carefully watched night and day. Loads of earth and stone had been dumped in and, at last, the danger was supposed to have passed. But, alas for human hopes. Standing one day, on the top of the dam where the water was beginning to flow regularly over the top in the proper way, Col. By remarked to the men "You see, boys, what our perseverance has accomplished." When, quite suddenly, a roar like thunder was heard below him. Shouting "Throw down your tools men and run for your lives," he dashed along the top of the dam, the stones falling under his feet and the great body of masonry bulging below, while an irresistible rush of water, the collection of many miles, kept tossing up rocks of enormous weight as if they had been but corks. The dam was rebuilt to such good effect that it stands there today, a monument to engineering skill. This is known as the "Hog's Back Dam," and takes it name from the presence of some curiously shaped boulders in the bed of the swiftly rushing stream. Black Rapids comes next, four miles further up, and having an ascent of 10 feet. Here is another immense dam,

300 feet long and 10 feet high. At Long Island there are three locks, by which 28 feet of ascent is overcome. There are two large store-dams here, on of them 740 feet long and 10 feet high, the other 330 feet long and 30 feet high. Further on we come to Burritt's Rapids where, by one lock, we are lifted 10 feet 6 inches. Here is the longest continuous run of the whole route, and is locally known as the "Long Reach." It affords a clear stretch of navigable water for 27 miles. The natural beauty of the scenery is also most charming on this stretch between Burritt's Rapids and Long Island. Four miles above Burritt's Rapids, we come to Merrickville. Here there are three locks with an ascent of 25 feet, the charming natural beauty of the scenery still continuing. Big Rideau Lake is the largest single body of water in the whole chain and is most attractive. Its islands, about 200 in number, are mostly heavily wooded. We now ascend 4 feet through a lock-gate and enter the "Narrows." Further on, at Newboro, we find ourselves 192 feet above the level at Kingston Mills, and, instead of being lifted up, we are let down. A cut of nearly a mile in length was here necessary in addition to a lock. Newboro has the distinction of marking the ridge of a watershed, the waters in one direction running towards Kingston and Lake Ontario, and in the other towards the River Ottawa. Here we descend 8 feet. Chaffey's locks serve to take us from the level of Indian Lake to that of Lake Opinacon, which we enter from Sand Lake. All along here there is bewilderment of enchanting beauty in scenery. At Jones' Falls—called by H.R.H. the Princess Louise the most beautiful spot in Canada—the Rideau rushes through a crooked and narrow ravine with impending cliffs 90 feet high, a mile in length and a fall of 60 feet. Here the difficulties were overcome by four locks placed amidst the most bewitching surroundings and an immense horse-shoe shaped dam holding back the waters of Sand Lake. We then pass "Whitefish" and "Cranberry" Lakes. The next lock is at Brewster's Mills, where navigation proper ends. Here is a descent of 10 feet. The next stretch of 10 miles is formed by backing up the waters of the Cataraqui river, which made excavation unnecessary and afforded water deep enough for navigation. Through all this course of 126 miles, Dame Nature may be said to hold full sway in pervading beauty, through the lakes and streams, with but a half a dozen miles of artificial construction scattered through the few sections where engineering problems needed to be met.

Kingston Mills, six miles from Kingston, has four locks, with a total descent of 47 feet; the dam penning the water is over 6000 feet in length by 14 feet in height. The locks are marvels of solid masonry

and triumphs of engineering skill. They are limestone blocks, 6 by 4 feet, and of proportionate thickness, are 142 feet long by 33 feet wide, and from 12 to 25 feet deep. The dams as well are of massive construction. Up to the year 1853, when the canal was transferred to the Provincial Government, the lock-masters were ex-soldiers of Engineers or Artillery, always wearing their uniforms. Above these locks stand the square, heavily-built block-houses, with slits in the walls through which rifles could be fired in the event of molestation by Indians or unfriendly strangers seeking to obstruct navigation.

Few, perhaps, are aware of the severe nature of the service during the progress of the building of the Rideau Canal. First were the exploration parties pushing through dark swamps and entangled forests overgrown with underwood, where it would be necessary, at one moment, to cut the way, and at the next to wade through deep mud and water, and with only the compass as a guide. In winter, surveying on the ice, the lakes and streams through which the canal was to pass, the cold being so severe as to make it next to impossible to handle instruments; snow and heavy clothing impeding movement; at night, the bivouac or storm shelter roofed with boughs, the bed of hemlock or pine tops before a fire of newly cut cedar. In the high waters of the spring, the passage of rapids exposed them to constant danger of upsetting canoes. Scorched with the sun, bitten by the numerous insects, obliged to quench the thirst with poison-laden swamp waters, their frames wasted by fever and ague, and, what they felt more than all, was their isolation, the several stations being at intervals of ten miles; for all this was endured from 1826 to 1832. To mention an incident,—A little beyond Jones' Falls, there was a dreary swamp some 18 miles in length and about two miles wide, called "Cranberry Marsh," where thousands of stout laborers lost their lives from a regular yellow fever. At morning and evening a blue mist hung over it, and, at all times, a most pestilential odour was exhaled. On one occasion Col. By almost succumbed to the evil effects. He was passing through one of the streams of clear water used for canal navigation while it was being partially drained to form a track for the canal, when his canoe grounded. The voyageurs jumping out to float it, found themselves up to the waists in blue slime with a most unbearable odour. All but two died shortly afterwards. Col. By was taken ill and had to be carried to his bed, where he remained for several weeks with total loss of appetite, severe pains in his limbs, fever, yellow jaundice, tremblings, general debility. He slowly recovered and was again actively engaged in his work in about six weeks.

From the year 1826, about 2,000 labourers were annually em-

ployed on the canal works; they usually remained about a year, learning all they could of Canada, and the ways of the country. Mr. Peter Robinson brought out two ship-loads of Irish immigrants who all, more or less, settled along the banks of the Rideau. They drove away a small settlement of Scotch by their outrageous behaviour, then, having no foreign foes to fight with, the passenger from each ship fought those from all the other to such purpose that the military had to be called upon to suppress the rioting. They were very troublesome at times, even threatening to shoot the officers who were directing and superintending the works.

In one particular, at least, the Rideau Canal differs from others, in that it is not ditched or cut by hand of man. Natural rivers and lakes are made use of and all that science or art has done is in the lockage at rapids or waterfalls and in the dams required to be built with this object.

In the collection of these historical memoranda from a few unfamiliar and partially trodden paths, which, strange to say, lie so near the walks of our daily round, I have necessarily been obliged to devote considerable time and energy in pursuit of interesting information. The material thus secured I have assembled in a somewhat rudimentary manner, but let us hope that the record may prove of some utility to those who may follow in our footsteps and assist in the compilation of the annals near and dear to the hearts of those who call the City of Ottawa their home.

C. E. BILLINGS.

December, 1907.

The Trent and Murray Canals.

You will find in the Annual Report of the Department of Railways and Canals, that the term "Trent Canal" is applied to a series of water stretches, which do not, however, form a connected system of navigation, and which, in the present condition, are efficient only for local use. By various works this use has been extended, and by others now in progress and contemplation this will become a through route between Lake Ontario and Lake Huron—thus avoiding the navigation of Lakes Ontario, Erie, and Huron, and greatly shortening the distance between Montreal and Georgian Bay.

Eleven lakes and four rivers are embraced in this scheme of navigation—extending from Trenton at the mouth of the river Trent, on the Bay of Quinte, and ending with the Severn river, which flows out of Lake Simcoe into Georgian Bay.

The course as originally contemplated and modified is as follows: Through the river Trent, Rice Lake, the river Otonabee, and Lakes Clear, Stony, Lovesick, Deer, Buckhorn, Chemong, Pigeon, Sturgeon and Cameron to Lake Balsam, the summit water, about 165 miles from Trenton; from Lake Balsam by a canal and the river Talbot to Lake Simcoe; thence across Lake Simcoe to the Severn river; then by the river Severn to the Georgian Bay, Lake Huron. The total distance by the present adopted route being 236¾ miles.

But before the Trent Canal was ever thought of there was one adventurous explorer of dauntless courage—Champlain—whose name heads the long list of Governors of Canada—whom, in 1615, if you will follow me in the course of his adventurous journey, you will find was the first white man to traverse this route of the present Trent Valley Canal system.

He started from Quebec accompanied by Joseph Le Caron (Recollet Missionary), Etienne Brulé, interpreter; 10 Indians, and 2 canoes. On reaching the vicinity of the rapids above Montreal, he held a conference with a number of Indians who had promised to meet him and take him to the great fresh water sea of the Hurons that seemed to him to open out the discovery of the longed for route to China.

He passed up the Ottawa, until in about latitude 46° 20' he reached the bend of the river where the stream Matawan flows in, whence he proceeded westward, through several small lakes into Lake Nipissing, from the outlet of which he steered his canoes westward, down the current of French river, where he says they suddenly encountered a band of 300 savages (Wyandots) whom the Hurons called Ondatahouat, whence the name Ontaouat, Ottawa. From their strange and startling mode of wearing their hair Champlain named them the Cheveux Relevés. "Not one of our courtiers," he says, "takes so much pains in dressing his locks. Here, however, their care of the toilette ended, for, though tattoed and painted, they wore no clothing whatever." Their demeanor was friendly, and from them the voyager learned that the great Lake of the Hurons was close at hand. Now, far along the western sky, was traced the watery line of that inland ocean—and Champlain beheld the "Mer Douce," the fresh water sea of the Hurons.

Before him, too far for sight, lay the spirit haunted Manitoualins, and, southward, spread the vast bosom of the Georgian Bay. For more than 100 miles his course was along its eastern shores, among countless islands. He crossed Byng Inlet, Franklin Inlet, Parry Sound, and seems to have landed at the entrance of the Bay of Matchedash, a little west of the harbour of Penetanguishine.

Here was the settlement of the Hurons, situated in a sort of peninsula, lying between Notawasaga Bay and the sheet of water now called Lake Simcoe. It was the 16th of August, 1615, when they reached the Huron metropolis Cahiague, in the modern township of Orillia, 3 leagues west of the river Severn, by which Lake Simcoe pours its waters into the Bay of Matchedash—the outlet of our Trent Valley Canal system.

Here was the rendezvous of the Hurons, and from which they started forth, shouldering their canoes and their scanty baggage—at the outlet of Lake Simcoe they stopped to fish, their simple substitute for a commisariat. The Huron fleet pursued its course along Lake Simcoe, across the portage to Balsam or Sturgeon Lake, and down the chain of lakes which form the sources of the river Trent. Champlain himself speaks of five portages, some of more than ten miles, which they necessarily had recourse to, between the sheet of water now called Balsam Lake and the shores of Lake Ontario, the whole region at the time which we write being like one vast wilderness. Parkman likened the canoes that now issued forth from the mouth of the river Trent to "a flock of adventurous wild fowl, putting boldly out upon Lake Ontario"—(which they had to cross on their third warlike

expedition against the Iroquois). But, here we must leave the hero of our early Canadian history.

The Imperial Government chose this route as being the most natural and feasible to make a water communication between Lake Ontario and Lake Huron. The earliest record of which we find, in what is called "A Measured sketch of the water communication between the Bay of Quinte and Lake Huron by the Rice Lakes, etc., in the year 1816-17." Also—"A Plan of the course of the river Trent, showing the improvements proposed by His Excellency, Sir John Colborne, in 1833; giving abstract estimate 61 miles and 365 feet lockage, with construction of 22 lockmasters' houses. Total amount, £233,447, 6s, 11½d."

In the year 1835 a sufficient sum was voted by the Government to construct that part of the work lying between Lake Ontario and Balsam Lake. The works then constructed have ever since been used for local traffic. There is evidence of the work at this present time, in a very extensive cutting for a canal around a rapids in the river Trent, about a mile above Trenton; and also at Chisholm's rapids 14 miles above Trenton, quite extensive works were undertaken, and about a quarter of a mile of canal was excavated in solid rock, and a substantial masonry lock was built by the Royal Engineers, which is still in a remarkably good condition. Also another lock at Hastings.

The Rebellion of 1837 deferred the execution of this scheme. In both Upper and Lower Canada the people had begun to assert themselves against the rule of the Executive Councils; public meetings were held in both the Provinces. Wm. Lyon Mackenzie, "the peppery Scotchman," in Upper Canada, and Louis Papineau, in Lower Canada, came forward as the champions of reform and popular rights. The struggle for Responsible Government, once entered upon was never permitted to relax—until the Imperial authorities, convinced at last that there must be a radical defect somewhere in the system of Colonial Government, appointed in 1838, the Earl of Durham, Governor General of British North America and Lord High Commissioner, "to enquire into the grievances of the Canadas, with a view to the establishment of a constitution which shall remove them."

As a result of his famous report on the state of the Canadas—the Home Government determined upon the union of the two Provinces, and the acknowledgment in the new constitution of the principles of Responsible Government. Resolutions were passed by the Provincial Legislature in favour of the scheme, and a bill based

upon them passed the Imperial Government in 1840, and went into effect 6th of February, 1841. On that day the provinces of Upper and Lower Canada were peacefully united under one administration, and Responsible Government was firmly established. "Her Majesty will look to the affectionate attachment of her people in North America as the best security for permanent dominion."

Among most interesting manuscript in the Archives we note one containing:—"Instructions for Major Phillpotts of the Royal Engineers in preparing the Report, etc., on the inland navigation of the Canadas, called for by Lord Glenelgs' despatch to the Earl of Durham, dated London, 23rd day of August, 1838. Major Phillpotts first instructions are in regard to the Welland Canal plans and estimates of probable expenses necessary to complete in such manner as will be most beneficial to the interests of both provinces—then "He will examine and make a similar report and estimate on the communication by the river Trent with the Rice Lakes, etc.," the internal navigation of these Provinces being a subject of the utmost consequence to their prosperity." Major Phillpotts will take care that his report is full and satisfactory upon all the various heads connected with it, in order that the Report may enable Her Majesty's Government to decide on the course which ought to be pursued in "rendering completely available those great natural means through which the commerce of the Canadas may be incalculably extended, and their general interest advanced to the highest pitch of prosperity."

Expenditure on the Trent Canal prior to Conferation amounted to $309,371.31. Nothing further seems to have been done until the year 1880—we find $561.50. From 1883 the work went slowly forward, and up to 1904, $4,624,392.00 had been expended, but, still so much to be done to complete this splendid national waterway.

In June of that year (1904) a most important event took place—the section 9½ miles, comprising the new Hydraulic Lift Lock at Ashburnham, Peterborough, was formally opened for traffic, its operation was admirable—this is one of the most notable lift locks in the world. It consists of two balanced tanks rising and falling vertically between masonry guide-towers; the two tanks are so balanced that when a boat enters the lower one, the introduction of a comparatively small amount of water in the upper tank, suffices to raise the lower one to the upper level, while the tank formerly at the upper level sinks to the lower position.

It will admit the passage of 800 ton barges, and cost $500,000. To describe it exactly:—Height of lift 65 feet, the largest in the world. Dimensions of presses: external diameter of cylinders, 8 feet 3½ inches;

diameter of ram, 7 feet 6 inches; working stroke, 65 feet. Pressure in presses during operation, 600 lbs. to the square inch. Approximate weight of water in each chamber 1,300 tons. Depth of water in chamber, 8 feet. Dimensions of chambers, 2, each 140 feet long, by 33 feet wide; depth 9 feet 10 inches. Built of steel plates. Height of guide towers, 100 feet from foundation. Base of tower, 26 feet 6 inches by 40 feet 8 inches. Breast wall of Lock, 4 feet thick, 80 feet high, and 120 feet long at base. Substructure of Lock—Concrete; the largest monolithic mass of concrete in the world; it contains over 26,000 cubic yards. Quantity of cement used, 26,000 barrels. Time of lockage 12 minutes. Actual time of vertical motion, 1½ minutes. The lock proper is automatic. Gates and capstans are worked by hydraulic power. Cost, half a million.

In 1906, the people of the Trent valley especially becoming impatient at the delay in finishing this important work, leaving it almost sealed up, "central portion completed, with two blind ends, A deputation representing 12 counties of Central Ontario waited upon the Minister of Railways and Canals with the "Trent Waterway Memorial" urging—among many other reasons why the Trent Canal should be completed without further delay—that, "This work is destined to be one of the great lines of grain transportation from the West to the Sea, and a more potent regulator of Railway corporations, freight rates, car shortages, demurrages and discriminations than the Railway Commission itself, that most useful and popular creation of the present government. Also—The Georgian Bay is the point where the grain will be focussed. As Sir William Van Horne has remarked: "The hopper is full, but the spouts are too small." Then, the Trent route, measuring from Sault Ste. Marie is 500 miles shorter than the Erie route. A steam barge of 800 tons towing four consorts, in the Trent Canal, can handle a cargo of 120,000 bushels, equal to 120 loaded railway cars, and can cary grain at 11 cts. per bushel from Midland to Montreal at a good margin of profit.". And , last but not least "everywhere there is water power." The memoralists subscribing themselves—The Senators, Members of Parliament and People of the Trent Valley.

In the country to the direct north of the canal there exists a vast system of reservoirs, with over 50 dams, which control about 70,000 acres of water; the transfer from the Provincial to the Dominion Government of the several works comprised in these back lakes forming the head waters of the canal system which was carried out under a provincial order-in-council of July 22nd, 1905, and Dominion orders of Feb. 16th, 1906, has proved of great service

in the maintenance of the water supply to the canal. "Traffic during the season 1906 heaviest in history of Trent Canal—28,495 tons of freight were moved, of which 26,645 were the product of the forest." Then again a record season reported last summer (1907) "Lockages on Trent Canal 10,431; over 88,000 pass through 8 locks in past year." Hydraulic Lift Lock was opened for public use July 6th, 1907, Lift 50 feet. Thus affording a 6 ft. navigation from Healy's Falls to Lake Simcoe, a distance of 160 miles. The booms and slides of that which was known as the Newcastle District were also taken over.

The all river route by the river Trent with outlet at Trenton, (Coburg and Port Hope having each urged claims for this distinction), was finally adopted by an order-in-council of July 19th, 1907; the canal to be of such depth as to give 8 ft. 4 in. of water on the mitre sills of the locks.

Commencing at the Bay of Quinte, (origin of the name from Keint-he, or Bay of the Kentes, a branch of the Seneca tribe) perhaps there is no sheet of water in Ontario possessed of greater natural beauty than this arm of Lake Onario—the bay commencing where the St. Lawrence begins its mighty flow. Its shores are rich in historic associations which time forbids me to touch upon.

The Ontario Rice Lake division of the Trent Canal extends from Trenton at the mouth of the river Trent, to Birdsdale, at the foot of Rice Lake, a distance of about 57 miles. For construction purposes this is divided into 7 sections as follows:—Section (1) From Trenton to Glenmiller, about 5 miles, now under contract. (2) Glenmiller to head of Sill's Island, about 44 miles, will be under contract this month. (3) Head of Sill's Island to 178 miles north of Trenton, about 8 miles, tenders will likely be asked for during current month. (4) From north end of section 3 to Campbellford, about 92 miles, expected to be under contract early this year. (5) Campbellford to Middle Falls, about four miles, is now under contract, and considerable work has been done. (6) Middle Falls to above Healy Falls, about three miles. This will be a very heavy and expensive section, and one of the best water powers on the Trent is located at Healy Falls, where a head of over 60 feet can be obtained. (7) Healy Falls to Birdsdale, at the foot of Rice Lake, about 209 miles. Those two sections 6 and 7 are also expected to be under contract this year. From Birdsdale to Peterborough, about 31½ miles, the canal line follows Rice Lake and the Otonabee river and there is practically no work to be done. From Trenton to Peterborough the regulated depth in the canal will be 9 ft., with 8 ft. 4 in. on the mitre sills of Locks. From Lake Simcoe to Georgian Bay, the above depths in canal, and

on mitre sills will be maintained. Between Peterborough and Lake Simcoe the average depth of water in canal is 6 ft. with 5 ft. 4 in. on mitre sills.

From the Lock at the city of Peterborough, (population 15,000) on the Otonabee river we pass through the wonderful Hydraulic Lift Lock already mentioned to Lakefield, 9½ miles from Peterborough, the dam at the head of the Nine Mile rapids from the river Otonabee maintains navigation on Lake Katchewannoe up to Young's Point. Lakefield Lock is known as lock No. 1,Peterborough, Lakefield section, the traffic through this lock is almost exclusively of freight. From Lakefield through Lake Katchewannoe we come to Young's Point Lock, the busiest on the Trent canal system, 5 miles from Lakefield with large tourist traffic. This lock is controlled by the Provincial Government. The dam between Lake Katchewannoe and Clear Lake controls the water level through Clear and Stony Lakes up to the foot of the Burleigh canal and lock built to overcome Falls of marvellous beauty. At Burleigh rapids, 10 miles from Young's Point, a canal about 2½ miles in length, passes the Burleigh and Lovesick rapids, romantically named from an Indian legend of a dusky maiden, wooed by a "pale-face," who, in haste to reach her camp, on his return from a hunting trip, ran these rapids and was drowned; in her grief the maiden cast herself from a projecting rock into the relentless stream.' This canal gives communication between Stony Lake and Deer Bay, 2 locks at Burleigh and 1 at Lovesick. At Buckhorn lock and rapids 7 miles from Burleigh rapids, there is a canal about one-fourth of a mile long. Buckhorn Lock connects Lovesick Lake and Buckhorn Lake, a new dam is now in course of construction at this point. Between Buckhorn and Chemong Lake lies the Indian village, a reservation of some 2,000 acres of land, mostly wooded and occupied by descendants of the once powerful band of the Mississauga tribe. Passing from Chemong, through Pigeon Lake we reach the lock at Bobcaygeon, 15¾ miles from Buckhorn rapids; a dam, 553 feet long, controls the water level up to Trenton Falls. From Bobcaygeon at the entrance to Sturgeon Lake, instead of direct, we may take the lateral navigation down the Lake, and up the Lindsay river to its prosperous town, the busy lock here connecting with Lake Scugog; 3 steamboats daily and much traffic on this river which flows into Sturgeon Lake. Nearly opposite its mouth we pass the elbow, Sturgeon Point, a beautiful summer resort, where a legend has it "in the old days when battles along these lakes were frequent between the Hurons and Iroquois, a young Iroquois chief, Ogemah, fell in love with the only daughter of a Huron chief. He came to Sturgeon Point,known

to the Indians as Na-ma-sah-gae-gun, to woo his love and was treacherously dealt with by his rival, a Huron brave." Mr. Wm. McDonnell has written upon this legend one of his choicest poems—"Manita," in his opening stanza, charmingly descriptive of the Point, he says:

"Stars come out one by one, as if to see
How like to Paradise this place could be."

Leaving this fascinating point we come to Fenelon Falls of great beauty, 15 miles from Bobcaygeon, here a raise of 28 feet is overcome, double locks and about one-third of a mile of canal connect Sturgeon with Cameron Lake, at the end of which, the lock at Rosedale, gives the necessary rise of only three feet to obtain the level entrance to Balsam Lake, the summit water. The opening of the Hydraulic Lift Lock at Kirkfield, already mentioned, completed the Lake Simcoe-Balsam Lake system, affording a through stretch of navigation from Healy's Falls on the south, to Barrie, Orillia, and other points on Lake Simcoe on the north.

"On March 19th, 1907, Mr. E. J. Walsh, engineer in charge, submitted completed general plans, profiles, estimates and reports for both 6 ft. and 9 ft. depth of navigation for proposed Georgian Bay outlets for the Trent Canal, from Lake Couchiching via Coldwater, and the river Severn respectively."

Let us hope that in the very near future this work may become an accomplished fact.

J. SIMPSON.

Murray Canal.

This canal extends through the Isthmus of Murray, giving connection westward between the head waters of the Bay of Quinte and Lake Ontario; thus enabling vessels to avoid the open lake navigation.

Its length between the eastern and western pier heads is 5½ miles. Breadth at bottom, 80 feet. Breadth at water surface, 120 feet. Depth below lowest known lake level 11 feet. There are no locks.

In 1906-'07 the superstructures of the entrance piers were rebuilt of concrete.

Amount expended on construction, renewals, etc., of the Murray canal since Confederation (chargeable to capital) $1,248,820.26.

JENNIE RUSSELL SIMPSON

February 14th, 1908.

The Welland Canal.

In an early preglacial period the St. Lawrence, or geographically speaking the Laurentian, rose in the Lake Michigan basin, took its course across what is now Lake Huron and the Georgian Bay, then across a valley and through the present Lake Ontario, then by the route the St. Lawrence still follows to the ocean. The continent was then at a much higher elevation.

The subsidence of the two lake basins points to a post glacial period. Nearly all the Great Lakes were then one great sheet of water called "Warren Water." This "Warren Water" embraced most of the Upper Lakes and extended from Lake Huron over Lakes St. Clair and Erie on into and over Lake Ontario, and much of the land surrounding the lakes. As the water gradually subsided three successive "beaches" were formed, which geologists have named successively, "Ridgeway," "Arkona," and the last and most important, "Forest Beach." The deformation or short line has a great deal to do with the Niagara River and its characteristics. When the sheet of water existed, it extended from Lake Huron high over Lakes Erie and Ontario, and there were therefore no Niagara Falls and no river, nor any need of a Welland Canal. (I am indebted to J. W. Spencer's "Falls of Niagara" for these geological facts.)

With the tilting of the earth's surface to the northeastward a high barrier was raised between Lake Ontario and Lake Erie. Lake Erie was drained to a small lakelet as the waters rolled back to Lake Huron. Thus three lakes were formed, 'the Algonquin' (so named of geologists) comprising Superior, Michigan, Huron and Georgian Bay (or Georgia), The outlet to this largest lake, the "Algonquin," was by a considerable river which flowed through the Nipissing and Ottawa Valleys to the Laurentian. As stated above, Erie was a little lake, the Niagara Falls being of small volume, as for long ages they only drained the little lake of Erie, then only 1000 square miles in area, instead of 10,000 square miles as it is today. Ontario, geologically named "Iroquois," was much vaster then than now, extending over much of what is land today, stretching as far as the present Galops Rapids.

Lake Iroquois was at practically the same level as the shrunken Erie. A recent geological discovery is that the old outlet to Lake Erie was some miles to the westward. With the continued uplift of

the continent to the northeastward, the waters of the Algonquin Lake flowed into Lake Erie. This has been recently determined by data to have occurred when Niagara Falls was at Foster Flats, below the present Whirlpool Rapids.

J. W. Spencer, in his work on the Falls, states that the sudden deepening of the channel, hollowed out rocks, and other signs at Foster Flats, point to suddenly increased and unusual volume of water. The present Lake Erie is the youngest of all the Lakes, and geologically of recent date.

The region about Niagara Falls was once inhabited by a large tribe of Indians of which the name is not known. Early in the 17th century they were called "La Nation Neutre," or "the Neutrals." The Algonquins, Wyandots, and Hurons were also to be found on the Niagara Peninsula, lying between Lakes Erie and Ontario. "La Nation Neutre," as they were called by the early French settlers, were almost exterminated by the Iroquis in 1650, a remnant were driven by the Iroquois to Lorette, where their descendants still survive. The land was deserted except by bands of Wyandots or Hurons, until a decade later, when it was inhabited by Chippewas (Otchepwes) and Mississaugas. They were roving tribes and came from their own hunting grounds around lakes Huron and Superior. Daring French trappers and hunters, "couriers du bois" had already arrived on the scene. The chief town of the Neutrals was Oughiara on the exact site of the present town of Niagara. This name Oughiara was afterwards adopted by the Indians which came there. The Mohawks called it Oh-nya-ga-ra, or "Neck," in reference to the river cutting the land between the two lakes. The first announcement of the falls comes from Champlain although he never saw them. In his map of 1632 Lake Erie is represented rather as an enlarged river connecting "the fresh water sea of the Hurons" with Lake St. Louis or Lake Ontario, where Champlain located the falls. In 1641 Father Lalemant of the Saulte Ste. Marie Mission, came from the Huron country across Southwestern Ontario, into the Neutral country,—thus he says, "and thence four days going to the entrance of the so celebrated river of that name into the Ontario, or Lake St. Louis." . . "The stream or river is that through which one great lake of the Huron, a fresh water sea, empties; it flows first into the Lake of Erie, or of the nation of the Cat, and at the end of the lake it enters into the territory of the Neutral Nation, and takes the name of Oughnaabra, until it enters into Ontario." Pierre Talemant visited the river and even then the Falls were "so celebrated." There were explorers and "courieurs du bois" in the district about the Falls as early as 1626. Father

Ragenau visited and describes the Falls in 1648, he writes: "Almost due South from the country of the Neutral Nation we find a great lake 200 leagues in circumference called Erie. This formed by the discharge of the fresh water sea (that is Lake Huron) and throws itself over a waterfall of dreadful height into a third lake named Ontario."

La Salle, accompanied by Dollier de Casson and Rene de Gallinée, were in this region about 1669. Gallinée remarks on the roar of the Falls, which they heard while crossing near the entrance to the river. In his remarks he says that the falls descend more than 200 feet. Hennepin made his celebrated map in 1683. (These notes are extracted from J. W. Spencer's "Falls of Niagara" partly, and partly from Kirby's "Annals of Niagara.")

Both La Salle and Denonville in his war against the Senecas, attempted to maintain fortified stockades on the banks of Niagara, but both were failures. Joliet, the great explorer, sailing along Lake Erie on his way from the Huron fresh-water sea, makes a portage across the Niagara Peninsula (apparently the first portage in that district on record), and fell in with La Salle, on the Shores of Lake Ontario. On the banks of the Niagara, the first vessel, "Le Griffon," to sail on the waters of the Erie, was built by La Salle.

After the Treaty of Utrecht, in 1713, as nothing definite had been determined as to boundary, the French found it advisable to build a stockade, on the site of the present Lewiston, to protect their portage past the Falls. In 1725 a fort was erected at the mouth of the river. This fort was rebuilt and strengthened by de Vaudreuil. The struggle for supremacy which resulted in the British conquest of Canada, brought the rival armies to the shores of Niagara. English garrisons took the place of French ones—but still there was no tillage of the soil, nor any attempt to make a permanent settlement. There were only outlying posts in the districts where a few soldiers and traders were scattered.

During the war of the American Revolution, Loyalists who had been driven from their homes in the Mohawk and Wyoming Valleys, many of whom composed the famous corps of Butler's Rangers, made the Niagara Peninsula their base of operations. Many of the good old families living in comfort and quiet happiness about the Welland and all throughout that district are descendants of some of Butler's Rangers or other U.E. Loyalists. As the district was so easily reached from the United States, a great many Loyalists, driven in the war of Independence from their old homes settled there, preferring to renounce all their possessions in order to cling more closely, "through thick and thin," to the British flag. Much of the early immigration came to the old city of Newark, now Niagara.

When the Loyalists lost all hope of securing their homesteads in the United States after the close of the war, it was resolved to grant them lands in the neighborhood of fortified places in Canada, as a reward. In the corps of disbanded Loyalists, the field officers received 5000 acres, to captains 3000 acres were granted, and 2000 acres to subalterns, and about in proportion lessening to those of inferior rank. Later every child of a Loyalist on attaining majority received 200 acres. (I have selected these and the following facts from Colonel Cruickshank's books on the Welland district, which he kindly lent me at the Archives). For two years after Loyalists had taken up land to settle permanently, they were granted a certain amount of clothing, and rations, seeds and agricultural implements. In 1784 about forty families were established in the present County of Welland. Population increased so rapidly that in 1781 the district west of the Ottawa River was made into Upper Canada, and the first Lt. Governor was Colonel John Simcoe. He divided provinces into counties, and gave the name of Lincoln to a tract of land, along the south shore of Niagara district and partly on Lake Ontario. This was later divided into the Counties of Wentworth and Welland. The principal river, hitherto called Chippewa Creek, was renamed the Welland, although the former name remained in general use for some years.

Population continued to increase, people flocking in from New Jersey, Pennsylvania and New York State. Nearly 5000 comprised the town of Welland in 1811. Mills were erected and a village sprang up around Fort Erie, and another at the juncture of the Welland and Niagara Rivers.

The declaration of war in 1812 between Great Britain and the United States, brought these strides of civilization to a halt.

There were only one thousand regulars west of the Ottawa River. Several prominent Americans, notably amongst them General Wilgur and Mr. Calhoun, gave respectively six weeks and a month as the time in which it would take the Americans to capture Canada. Before long they were undeceived, and discovered that Canadians were loyal and brave. The first attempt to attack Canada in 1812 brought about the surrender of the American General Hull, at Detroit, with his troops, to General Isaac Brock with a much inferior force. The capture of Michilli mackinac by the British had taken place. Brock hastened to the frontier of Niagara as the American "Grand Army of the Centre" was amassed there. Sir George Prevost, learning that "the orders in Council" had been revoked in the Imperial Parliament, ordered hostilities to cease. The Americans however refused to have peace, and Brock prepared for defence. This gallant leader was killed early in the

fight at Queenston Heights on October 13th, 1812. Although slain early in the war, his active measures for defence and his personal gallantry have made him one of our most heroic figures. Major General Sheaffe, on whom the command devolved, succeeded in obliging the enemy to surrender after a desperate fight. Again in November, the frontier was menaced. General Smyth ("Proclamation Smith," as he was nicknamed) attempted with a large force to attack Fort Erie. After a fierce struggle with a small outpost of Canadians, Bishop arrived with his troops, and the Americans retreated, leaving many killed or captured. The next attempt was frustrated by the insubordination of the American militia, who stated that they would defend their own country against the Canadians, but objected to attacking and carrying the war into their enemy's land. After many delays the campaign of 1812 closed for the winter.

The plan of campaign of 1813 was similar to the previous year, with the exception that "the Grand Army of the Centre" of the Americans was divided and had different commanders. The Americans endeavored by a strong fleet on Lake Ontario to cut off the Niagara district. After the capitulation of York (Toronto), which they abandoned from strategic reasons, they concentrated at Niagara. On May 27th they attacked Fort George by land and water. The British General, Vincent, despairing of holding out, withdrew his troops and blew it up, retreating first to Queenston Heights, then gathering together all his forces he marched to Burlington Heights. The Americans followed and pitched camp on the banks of "Stony Creek," where on the night of June 5th, a detachment of British troops attacked them in the dark, and so confused the enemy that the British succeeded in capturing the two American Generals. Before long General Vincent was able to return to his frontier posts, and the Americans only held the county in the neighborhood of Fort George. It was in this campaign that Laura Secord, (the wife of a militiaman, wounded at Queenston), hearing of the intended attack by the Americans on the isolated outpost of Lieut. Fitzgibbon, at Beaver Dam, cleverly and bravely forced her way to him and warned him of his threatened danger. This daring of Laura Secord's and Lieut. Fitzgibbon's bold stratagem, by which he captured the whole force of 500 men, are brilliant records in our Canadian history. Canadians having been gloriously successful in the East, reinforcements were sent to Niagara, and the Americans withdrew their troops, after their shameful burning of Newark on a bitter winter's night. General Drummond followed, and in retaliation laid waste their frontier. With the ending of the year, the Americans relinquished Fort George, their last strong-

hold on Niagara soil. (These notes are taken from Colonel Cruickshank's book on the County of Welland, Garneau's History of Canada, and Clement's little History of Canada.)

In 1814 Britain was able to send forces to Canada, and that year was one of disaster to the United States. Until then the Canadian militia had borne the brunt, but now from the defensive they were able to turn to the offensive. A number of British troops were sent to the Niagara frontier, although the majority were detained in Lower Canada. General Drummond was commander-in-chief, stationed at Fort George.

The American General effected a crossing in July, and the British troops at Fort Erie fell back to the Welland River, then generally called Chippewa Creek, but the British had to retreat before superior numbers after a hard fought fight on July 5th. Further British reinforcements appeared and the Americans retreated towards Chippewa Creek. On July 25th, 1814, towards evening, a fight began in Lundy's Lane and raged into the night. The Americans finally withdrew from the field, leaving many slain on both sides. It has been called "a drawn battle," but the Canadians and British held the field.

Drummond laid siege to Fort Erie but the attack failed, and later in September the siege was raised. The American General Brown finally evacuated Fort Erie and withdrew his troops. 1814 had turned the tide against the States, and the Peace of Ghent, December 1814, was hailed with satisfaction by the majority of Americans. (These notes are drawn from Garneau's History and a small history by Clements. I have endeavored to make as brief an outline as possible.)

It was this war of 1812-14 which acted as a spur to the idea of building a canal between Lakes Erie and Ontario. As early as 1816 a joint commission was formed from both Houses of Upper Canada to report on a canal to conduct navigation round the Falls and rapids of Niagara River. Eventually a bill was tendered to appropriate funds for a survey of the most suitable route from Lake Erie to Lake Ontario. Two years afterwards a petition from the inhabitants of old Newark (Niagara) was favorably noticed, and a committee to carry out the work appointed. In 1823, the Commission which had been appointed two years previously to go into the subject of Inland Navigation, recommended the construction of the Welland Canal, with dimensions to accommodate boats of the size of those used on the Lakes. William Hamilton Merrett was the originator of the Canal. It was to use the waters of the Welland River, then tunnel through a ridge of high land, a mile and a half, then descend by means of another canal to "Twelve Mile Creek," and to the outlet at Lake Ontario. (I am indebted to

Kingsford's "Early Canals" and to a book on William Hamilton Merrett for this and the following information). This fresh scheme was projected in 1823, and Mr. Hiram Tibbett was in charge. Early in 1824 a petition was sent to the Legislature asking for Act of Incorporation of a Canal for boats of twenty to forty tons. The probable expense was estimated at £22,125, the capital was named at $150,000, being 3,000 shares at $50 each. The Imperial Government helped the Company from time to time, by loans or buying stock. But the history of the building of the Canal is a history of financial embarassment. (The above notes are partly from Kingsford's "Early Canals" and Castell Hopkin's Encyclopedia.) The following extract is taken from William Hamilton Merrett, speaking of his beloved project, "This Canal is intended to connect Lakes Erie and Ontario, and thereby remove the natural barrier caused by the wonderful Falls of Niagara. It extends in magnitude any other constructed in America, except the short cut from Chesapeake to Delaware Bay, and in extent any in the world. By reference to the map of Niagara Peninsula, it will be seen that from the mouth of the Grand River on Lake Erie it continues up that stream by a towing path one hundred and twenty-eight chains, thence by thorough cut through an extensive marsh ten miles, thence down "Mill Creek" two and a half miles until it intersects the River Welland into which it descends by a ship lock of eight feet lift, thence a towing path or track way is constructed ten miles, and thence the canal runs in a northerly direction to Lake Ontario, winding up a ravine about sixty-five chains with from eight to twelve feet cutting. The part is finished and filled with water, together with a guard gate to control the admission of water of Lake Erie. Thence commences the deep cut (as it is termed) or dividing ridge, and a most formidable work it assuredly is. It commences with an almost abrupt height of thirty feet above the canal bottom, then gradually rises to fifty-six feet, six inches, in a distance of twenty-eight chains to thirty feet where it is abruptly breaks off in another ravine. The entire distance through the cut is one mile, fifty-four chains, averaging about forty-four feet cuttings, to the depth of from 12 to 18 feet from the surface. It is composed of clay with a mixture of sand, and below this tenacious blue clay." Then further Mr. Merrett describes how they excavated the canal bottom. In the Archives in this same book was a letter signed "George Keefer, junr., which describes the machinery in general use for excavating. I have inserted the account here as the process seems so primitive, although on the same principle as "the gravity railway," of which the one at the Mountain at Montreal, and another at the Falls of Montmorency are good examples, except

that electricity or steam are substituted. Steam gravity railways are used on construction at the present time, where one car descends and another ascends simultaneously.

The letter is as follows: "The facility with which the earth is removed in deep cutting by means of the improved machine invented by Oliver Phelps must be obvious upon the slightest inspection of the accompanying plan and must necessarily supersede the use of any other method hitherto made use of for this purpose, both on account of the increase of power and the simplicity and cheapness of its construction, which consists of nothing more than a common wagon wheel with the addition of a rim for the purpose of fastening on the rope by which the carts are drawn up. The wheel is so placed on an axle or upright piece firmly supported by a trace fastened in a piece of timber bedded in the earth, and two posts framed together, and so placed as to keep the wheel steady, with two staves fixed to the sides to keep the rope in its place. A road is constructed on the bank in an oblong direction forming an angle of about fifteen degrees from the top, where the machine is placed, and the bottom of the Canal. The great advantage derived from this method is that no power is lost, for the empty team descending assists the one ascending, thereby reducing the ascent to a level. Six teams may be attached to each machine, and work without the least inconvenience and interruption."

George Keefer, junr."

It may be of interest to note that in the accompanying plan the teams were of oxen and the whole plan was to our more modern eyes, delightfully primitive.

The Canal was first owned by a private company, incorporated by Act of Parliament, with a capital of $800,000. The Legislature of Upper Canada subscribed $200,000, Government of Lower Canada authorized another $100,000. The Imperial Government gave one nineth of the amount of its cost, on condition that British goods pass free of toll, giving also a donation of 13,000 acres of Crown Lands between the Welland and Grand Rivers. The general dimensions of the Canal were 8 feet depth of water, 26 feet width at bottom, with a slope of two to one, which gives a surface of water 58 feet. The Board of Directors was composed of a president, vice-president, and five directors. Hon. Henry Dunn, Receiver General of the Province, was President; Solicitor General Mr. Harry Boulton, Vice-President; and the directors, five in number, were, Hon. Colonel Wells, J. B. Robinson, Attorney General D'Arcy Boulton, jr., George Keefer, and John Clark. Alfred Barrett of the State of New York was principal engineer. In 1825 a new scheme for the canal was adopted to enable

schooners and sloops to pass through. The entrance was to be at Port Dalhousie and the upper end at the Welland, whence the supply of water was taken. (These notes are deducted from Kingsford's "Early Canals" and Castell Hopkin's "Encyclopedia," and the following facts are from Marceau's Report, and also from The Report of the Department of Railways and Canals of 1905.)

Marceau speaks most highly of the intrepid character of Mr. Hamilton Merrett, who in the face of such financial difficulties, and misfortunes such as the slides of earth on the canal, and illness amongst the employees, yet persevered. The filling up of "the deep cut" by earth slides, led to the abandonment of the Welland River as a feeder, and using the Grand River, instead at a point about five miles above its outlet. Of course these changes led to further monetary embarrassements. In 1820 the Imperial Government granted the Company a loan of £50,000 sterling. With this help the undertaking so progressed that in November 1829, two vessels, the "R. B. Boughton" and the "Anne and Jane" drawing 7½ feet of water with 21½ foot beam passed through from Lake Ontario to Lake Erie, a distance of 16½ miles of canal and 34 locks. In those days the route was thus a quarter of a mile to the west of the mouth of the Welland, where the canal commenced. The route was along through the Welland River for nine and a half miles, then two locks were ascended to the "deep cut," where the canal proper was met with. The waters of the Grand River, which was the feeder, were conveyed across the Welland by an aqueduct. From thence to Lake Ontario the canal descended. Further assistance was given by the Government in the shape of $200,000 debentures, but on conditions, one of which was to carry the canal southward to Lake Erie on nearly the same lines as it is today. The canal was narrow, and locks were 100 feet long by 22 feet wide, except at the entrances, where the locks were larger. All locks were of wood and constructed as economically as possible. In 1841 an appropriation was granted towards enlarging and improving the works, and the wooden locks were replaced by ones of stone, the aqueduct was also rebuilt of stone. Shortly before the Government had taken over the canal and placed it under the Board of Works, the locks inland were made 120 feet long by 24 feet wide, with 8½ foot of water on the sills, while the locks at the entrance were 200 feet long by 54 feet wide, with 9 feet of water on the sills.

The Annual Report of Railways and Canals for 1905 gives the length of the enlarged line of the Welland at 26¾ miles, to the old 27½ miles, with 25 ordinary lift locks and one guard lock, the dimensions of the locks being 270 feet by 4 feet and a depth of water on the sills of

14 feet. The Welland Canal has two entrances, the old and the new. From Port Dalhousie to Allanburgh, 11¾ miles in distance, there are two distinct canals in use, the old and the new. From Allanburgh to Port Colborne, a distance of 15 miles, there is only one channel, the old one enlarged.

There is at the present date a survey going on, with the idea of finding out whether it is feasible to so enlarge the present Welland Canal, or to construct another, so that boats from the Upper Lakes could pass through to Prescott without unloading, that is, boats drawing 20 feet of water. At present boats are unable to pass through the canal drawing more than 14 feet, though they can come into the harbour drawing 19. Part of the cargo has to be discharged and sent down by the Welland Railway, and reloaded at the lower end. At present the size of boats is limited to a length of 255 feet and beam of 44 feet. If the new canal were constructed it would probably be made sufficiently large to take the Lake freighters, which are over 600 feet, 60 foot beam, and draw about 20 feet.

The cost of the Welland Canal to date is over $26,000,000.

Owing to lack of time in preparation, this paper has developed into an engineering paper with a slight historical sketch, and would be excessively dry if it were not on the waterways, and yet the Niagara Peninsula is one of intense interest, not only on account of its many historical and legendary topics, but also on account of its many beautiful homes, for "lo, it is a goodly heritage." Vineyards, with row upon row of trellised vines, o'ershadowing the purple grape; plains of feathery tree tops, the softly green of peaches, fruits in gracious colorings, curving country roads engloomed by black walnuts rising in majesty on either side, all shimmer in a soft summer haze. Kind, happy people, with grand old Colonial homes, pass before our eyes. Niagara, true "old Virginia" of Canada, with its old homes, old families, descendants of a nobler day! The Grand River, grand in name only, flows, pleasantly English, beside marshy banks or by wooded heights, revealing here, as we glide along, a red brick town, there a lofty colonial mansion of greystone above the woodland slopes. Little fairy islets dot the stream. The whole country about is undulating and fertile, the garden of Ontario, so fitly called.

"The veil of cloud was lifted and below,
Glowed the rich valley, and the river's flow
Was darkened by the forest's shade,
Or glistened in the white cascade;
Where upward, in the mellow blush of day
The noisy bittern wheeled his spiral way.

I heard the distant waters dash,
I saw the current whirl and flash,—
And richly by the blue lake's silver beach,
The woods were bending with a silent reach.
Then o'er the vale with gentle swell
The music of the village bell
Came sweetly to the echo growing hills.

If thou are worn and hard beset
With sorrow, that thou would'st forget,
If thou would'st read a lesson that will keep
Thy heart from fainting and thy soul from sleep,
Go to the woods and hills! No tears
Dim the sweet look that Nature wears."

(From Longfellow's "Sunrise on the Hills.")

MADELINE L. MATHESON.

November 13th, 1908.

Many of the books and letters from which notes are taken and facts are gathered, were secured at the Archives through the kindness of Dr. Doughty and Col. Cruickshanks.

Sault Ste. Marie Canal.

The West is the scene of rapid change. The old ever gives way to the new and the passing of the Indian, who is supplanted by the progressive white man, is as a type of all else in this growing country. No longer is the birch bark canoe the vehicles of traffic in our great waterways, but in its place the waves are pushed aside by the leviathans of commerce. Journeying in all the luxury provided by our country's greatest enterprise, many of our number may have sailed by the Rapids of Sault Ste. Marie and through one of the most famous canals on this continent, with but little thought of the historic shores of the St. Mary River and perhaps scarce realizing that these river banks had a history prior to 1889, when the Canadian Government commenced its great ship canal. Only fourteen years have passed since this wonderful piece of engineering was completed but even this short period has seen changes of gigantic proportions about the Rapids of Sault Ste. Marie. Before dealing with the great canal of the present day I intend to take your thoughts back to those times in the remote past when neither trader, m'ssionary, nor engineer had a thought of the Saint Mary River.

A beautiful legend has come down to us of the origin of these rapids. The story runs that an Indian brave built a dam across the narrows where now the rapids are, to entrap the beaver which were thought to be dying out. Leaving his wife to watch the dam, he went up the river to hunt his prey, but while he was absent Man-ab-o-sho, the great Uncle of the Ojibways came down chasing a deer. The deer leapt into the water above the dam and the Indian girl was told by the Great Spirt to drive it back. She left the dam to chase the deer and immediately the beavers appeared, clambering over and forcing down the piled up stones. The beavers escaped and the stones thus cast down formed the rapids. The Indian, in anger, hurried back and slew his wife, throwing her body into the flood. The roaring of the waters is said by the Indians to this day to be the voice of this murdered woman and as the bubbles rise they will say, "behold the tears of her who was wrongfully slain." The legend further states that Man-ab-o-sho received his punishment for this affair by being turned into a great stone helpless to aid yet able to know the wants of his people and to this day lies in the harbour of Port Arthur, "the keeper of the gate."

So much for the legends of pre-historic times, but coming to the days when names well known to history stand out a tradition is common that Cabot the Venetian visited these shores and a promontory on the North Channel may be pointed out to the traveller as Cabot's Head. However, the maps of this discoverer, given out in 1544, do not record any such journey, and we must content ourselves by commencing the authoritative history of the white man's adventures in these wilds in 1603. At that date the fur trade had been established and once a year hundreds of the Indians brought down their supply of furs to barter with the French at Quebec. These Frenchmen filled with desire for adventure and wealth soon pushed their way into the interior eager to trade with the Indians. In 1605 the Beaver Company had agents scattered about the Great Lakes. Amongst those was Etienne Brulé, who more than once acted as interpreter for Champlain, and who, in 1618, reported having shipped his canoes on Lake Superior. Champlain published a map in 1632, giving authoritative recognition to Sault Ste. Marie, then called Sault du Gaston, in honour of Jean Baptiste Gaston, younger brother of Louis XIII, the former name having been Baw-a-ting. Coming at the same time with the traders were those pioneers of civilization on this continent, the noble order of Jesuits to whom we all owe so much. Writing of the type of men who came out, Parkman says of France: "It was her nobler and purer part that gave life to the early missions of New France. That gloomy wilderness, those hordes of savages, had nothing to tempt the ambitious, the proud, the grasping, or the indolent; obscure toil, solitude, privation, hardship and death, were to be the missionary's portion. He who set sail for the country of the Hurons, left behind him the world and all its prizes. True, he acted under orders, obedient like a soldier to the word of command, but the astute Society of Jesus knew its members, weighed each in the balance, gave each his fitting task, and when the word was passed to embark for New France, it was but the response to a secret longing of the fervent heart. "The letters of these priests departing for the scene of their labors breathe a spirit of enthusiastic exhaltation which to a colder nature and a colder faith may sometimes seem overstrained, but which is in no way disproportionate to the vastness of the efforts and sacrifice demanded of them.

Among the best known Jesuits who found their way to Sault Ste. Marie were Isaac Joques, Charles Raymbault, Charles Dablon, Louis Andre and Pierre Marquette. The last named missionary left Montreal on April 21st, 1668, to commence his work as resident priest at the entrance to Lake Superior, where a small settlement of twenty to

twenty-five voyageurs had been formed, and immediately after the arrival of this grat apostle of the west a station was built. The location chosen was the south shore of St. Mary River, at a point which would now be about the center of the American Sault. A chapel was built, a house for the fathers, and the ground about the mission was tilled. When the mission was firmly established the name was changed from Sault du Gaston to Sault Ste. Marie, as the Virgin was invoked as the interceding Saint. In the Jesuit Relations, from which so much matter of incalculable value may ever be gleaned on these subjects, le Mercier writes: "Toil, famine, scarcity of all things, ill treatment from the barbarians and mockery from the idolators form the most precious portion of these missions."

About the same time commences the struggle between French and British for supremacy in this region, which now is divided the one side of the river British and the other belonging to that new power which owes so much to both French and British adventure.

On May 2nd, 1670, under Charles II., was formed in London the great Hudson Bay Co., which plays so great a part in all Canadian history and doubtless it was the news of this new British enterprise which led the French under Daumont de St. Lusson to take formal possession, in the name of France, of all the great west. The place agreed upon for the decisive action was none other than Sault. Ste. Marie, and 14th June, 1671, found 2000 Indians, representing 14 tribes, the soldiers of France and Jesuit Fathers gathered about a large cross of wood which was placed firmly in the ground, the hymn known as St. Bernard's, "The Royal Banners Forward Go," was sung, a prayer for king uttered, and the following proclamation read: "In the name of the Most High, Mighty and Redoubted Monarch Louis XIV., I take possession of this place, Sainte Marie du Sault, as also of Lakes Huron and Superior, the Island of Manitoulin, and all countries, rivers, lakes and streams contiguous and adjacent thereunto—both those which have been discovered and those which may be discovered hereafter, declaring to the nations thereof that from this time forth they are vassals of His Majesty, bound to obey his laws and follow his customs, promising them on his part all succor and protection against the incursions and invasions of their enemies, declaring to all other potentates, princes, sovereigns, states and republics—to them and their subjects—that they cannot and are not to seize or settle upon any parts of the aforesaid countries save only under the good pleasure of His Most Gracious Christian Majesty, and of him who will govern in his behalf, and this on pain of incurring his resentment and the efforts of his arms. Vive le Roi." The ceremony was very brilliant,

and a treaty was entered into with the Indians. Saint Lusson, feeling quite satisfied, departed for a trip of observation on Lake Superior, before going eastward, but as he came back he discovered the post uprooted and the plate torn off. Soon after this fierce struggles ensued between the Ojibways and Iroquois, and after much warfare the Jesuits were in 1689 obliged to abandon the Mission, and this for a time ended the white man's rule at Sault Ste. Marie. It was however about at this time that La Salle, the famous explorer, visited the district and it is recorded that he with his boat, the Griffon, traversed Lakes Huron and Michigan, and it is probable that his was the first large vessel on the Upper Lakes.

The years that followed until the middle of the eighteenth century, give us few incidents of interest, but although the mission was abandoned, a population of Frenchmen was slowly making headway, and so important was this famous point, Sault Ste. Marie, that the French, already anxious about their great possession in Canada, ordered a fort to be built there. Repentigny, who was chosen to do this work, was an interesting character, and in 1750 he commenced his work. The fort is described as enclosed in a palisade 100 feet square, three houses were built, one 30 feet by 20 feet, and two each 25 feet by 25 feet. It is also recorded that eight cattle and three horses were brought out and farming operations were inaugurated. Repentigny, however, was too great a soldier to be left long in this remote region during the troubleous times, and leaving one Cadotte in command, he journeyed to Quebec where, with many other heroes, he fell at Plains of Abraham. Cadotte long watched for the return of his chief officer, but instead came a detachment of British soldiers under Lieut. Jemette, and just ninety-one years after Saint Lusson's dramatic scene of taking possession, the flag of Great Britain was first unfurled on these shores.

When peace was fully established the great Hudson Bay Company found itself really the ruling power of the interior and to protect itself established outposts to defend its trading from outside organizations. A number of independent traders formed themselves into a rival organization, the N.W. Co., which erected a post at the foot of the Rapids on the north shore, where were the house of the chief factor, and a number of stores for the reception of goods bound for the west, and for storage of furs en route for Montreal. To facilitate traffic a canal was built between the islands, and the mainland and a lock, the first in the west, was constructed. This is accurately described in a paper read before the Royal Society in 1893 by Mr. T. C. Keefer. "The first lock between Lake Huron and Lake Superior was made by a Canadian

Company in the closing years of the last century. One of the North West fur trading companies of Montreal cut a roadway 45 feet wide across the portage on the North, or Canadian side, of Sault Ste. Marie and opened a canal upwards of 300 feet in length, and with a lock which raised water 9 feet. This lock, 38 feet long and $8\frac{3}{4}$ feet wide, was built like a flume, the posts of which at the lower end were high enough to permit boats to pass under their caps. A windlass raised the lower gates, but the upper ones were folding with sluices therein to fill the lock. A planked flume the width of the lock, 300 feet long and six feet high, conducted the boats into this lock. A round log cribbing extended the whole length of the canal, 12 feet in width, forming a tow-path for the purpose of dragging the boats up the stream. As the whole falls at the Sault is 18 feet and the lock only dealt with half of this, the canal or channel above must have had a surface inclination of 3 feet in 1000. It was completed in 1798. In July, 1814, the post was pillaged and burnt by Major Holmes at the head of 150 Americans, when it is supposed that this lock with the wooden banks of the canal was burned to the water's edge. It will however, be of interest to point out that through the generous patriotism of F. H. Clergue, Esq., the lock was restored in form if not in material, and a reproduction of the first lock in the west may be seen at any time at the north of the Lake Superior Power Company's office at Sault Ste. Marie.

It must be steadily borne in mind that during the early establishment of the United States, Michigan remained British, and that virtually until 1820 both sides of the river owed allegiance to the same power; that year, however, came the final settlement, and with the end of the war the new flag commenced to float on the southern shore.

About the same time, 1821, the first steamer made her appearance at this point. She was called the "Walk-the-Water" and the Indians were so overcome by the sight of her approach that they fled to the woods, and their terror increased upon hearing for the first time the primitive steam whistle, which was the forerunner of so much which is more wonderful but is regarded as commonplace today. The settlement is described at this time by Lieut-Col. Cockburn, Deputy Quartermaster General as follows, "On the Canadian side of the St. Mary's River the N. W. C. (now the H. B. C.) have a large establishment. There are several other houses and one or two inhabitants of respectability. There are some houses on the American side, but not as many as on the Canadian side." (March, 1822.)

Not long after this the first action was taken with regard to the Canal on the American side of the outlet of Lake Superior, and for

several years controversy was carried on regarding the somewhat unfeasible undertaking. Henry Clay, one of the famous statesmen of his time is quoted as saying, "It is a work beyond the remotest settlement in the United States, if not in the moon.' Also Captain Ward of Detroit, one of the largest vessel owners on the Great Lakes, wrote, "The size proposed by the Senate Bill, 350 feet by 70 feet locks, is entirely too large for the locks. The crooked, narrow, shallow and rocky channels in the St. Mary River will forever deter the largest class of steamers from navigating these waters." In spite of such opinions and many obstacles, the first American Canal was completed in 1855, and was used for many years by vessels belonging to either country. The outbreak of the Riel rebellion in 1870, was the first cause of the building of our present great canal, as on the arrival of Col. Wolsley with his troops at Sault Ste.Marie, the Michigan authorities refused the use of the canal to our soldiers. Vessels were brought down to the Portage at the old Hudson's Bay Fort and the stores were carried from the site of the present Government Dock to the wharf at the portage and then placed on board the transports. Col. Wolsley had serving on his staff at the time Capt. Buller, now Lord Buller, of South African fame. It may be of interest to quote the great commander's opinion of our Canadian men; he wrote, "I shall never forget the energy which the two militia battalions representing the two great Provinces, of Quebec and Ontario, displayed during the undertaking. I wish all the battalions at the present moment in the King's Army were composed of as fine men."

This experience made it apparent to the Canadian people that we were dependent on a foreign, and at times a not too friendly nation for access by water to our western possession, and that a ship canal must be built. By Orders in Council, 24th December, 1891, the dimensions were finally settled as follows: Length of chamber 900 feet; width of chamber 60 feet; depth of water on sills 19 feet at lowest recorded water level. These plans allowed three vessels to be in the lock at one time. Electricity generated by water power is used for the operation of the lock, which can be filled and opened in about nine minutes. The Hon. Collingwood Schrieber, Chief Engineer of Dominion Canals, was in charge of the work, and from his report in 1894, we read that the work under progress had been visited by eminent foreign and Canadian engineers. all of whom spoke in highest terms, especially of the construction of the lock, which is the finest of its kind on the continent, and a credit to its contractor. The estimated cost of work, including the river stretches for 20 feet of navigation was $4,000,000. The total Government expenditure

from 1888-1907, for the Sault Ste. Marie Canal is $4,639,180.62. The oft repeated statement that the traffic passing through the American and Canadian Canals annually exceeds that of the Suez, is borne out by the following figures: The season of 1906 saw 4,152 lockages through Canadian Canal, passing 5913 vessels with a total tonnage of 6,359,176 tons. The growth of our wonderful west cannot be more strongly emphasized than by the comparison of these figures with those of 1851 when 12,600 net tons were carried across the portage bound for the Western States and Canada.

From this superficial research regarding the affairs of one locality in our vast Dominion we learn of the genius which has combined to give us our great heritage. The Indian, the trader, the missionary, the soldier, the colonist, and the engineer have all nobly played a part. They have opened a gateway to a wonderful country and from strife and bloodshed has been unfurled the flag which stands for liberty and is loved by sons and daughters of Canada. The country is being peopled, the gateway stands open.

"They come from near and they come from far,
The East, and the West, and the South give men
And they build new homes 'neath the north set star
They'll n'er swing back to the old again."

CLARA S. CAPP.

The writer is indebted to "The Story of Baw-a-ting" published in 1904 by Rev. E. H. Capp for legends relating to early history of Sault Ste. Marie.

Canals of the Ottawa and Rideau Rivers.

The war of 1812-1815 was rendered all the more difficult by the fact that the troops and the stores had to be sent to Upper Canada from Montreal through the rapids and falls of the St. Lawrence. As soon as peace was restored the question of a water route between the two provinces occupied the Imperial authorities.

The St. Lawrence route, was by the Royal Engineers, considered to be too near the frontier for a military one. The influence of the Imperial Government was exerted in favour of an interior route between Montreal and Kingston, via the Ottawa and Rideau Rivers. The Legislature of Upper Canada was offered, in 1824, financial assistance if it would undertake the Rideau Canal, but soon declined, upon the ground that the St. Lawrence would best serve the commercial interests of the country. The home Government then decided to carry out this land communication, which had been commenced upon the Ottawa at Grenville, in 1819.

Seven locks were constructed, 106 feet by 20 feet in the chamber, with 6 feet water, but the remaining ones upon the Ottawa were, in 1828, to 128 by 32 feet, with the same depth of water.

The French, and afterwards the English, used the Ottawa River to trade alongside of it, and to reach the Great Lakes for the same purpose, but the bark canoes did not require canals to avoid the rapids and falls, as they were carried on the shoulders of the men, wherever they could not pass with the paddle or with the help of a towing rope. Therefore the necessity for such works only became apparent when vessels of larger dimension were introduced on these waters.

In the early days of the colony the Indians of the vicinity of Lake Simcoe went to the Ottawa River by the Rideau, in order to meet the people of the Upper St. Maurice and Gatineau River, where Gatineau Village and Hull now stands. They also went down to Montreal and traded there with the French. So did the Papineauville or Petite Nation tribe.

The small lakes from which the Rideau takes its source, have another outlet through Cataraqui River, which empties in Lake Ontario at Kingston. The plan consisted in using those two streams in order to reach Lake Ontario from River Ottawa, by ascending the Rideau to the little lakes and from there, to descend the Cataraqui to Kingston.

We all know that it is impossible for vessels to enter the Rideau at Ottawa on account of the Falls. Consequently an opening had to be made somewhere by cutting the land from the Ottawa shore to some place on the shore of the Rideau. It was thought that this could be done at the place called The Flatts, where one arm of the Rideau discharged itself into the Ottawa. It is yet visible on examining the grounds to Dow's Lake, that an ancient current passed there before the St. Louis Dam was built. That discharge seems to have run only a small quantity of water, except when the Rideau was very high in the spring season, for instance, but the engineers knew very well how to raise the level of the water by stopping the arm of the river itself at the place afterwarsd called "The Deep Cut." In that way the current flowing from Hog's Back would have entered in Dow's Lake as at present and gone down the declivity of the ground direct to the Ottawa. Three or four locks in that discharge could have redeemed the difference of level between the branch of the Rideau and the Ottawa.

The legend goes to say that some one hearing of the scheme applied for the grant of the land in that direction and obtained it, with a view to derive a large benefit from the sale of the same when the locks were built there. This being known to Colonel By, he changed his plan. Whether the legend has any foundation or not I am unable to say any more about it.

Then Colonel By made up his mind to block the arm of the Rideau at the south end of Nicholas street and to open the Deep Cut as we see it now, placing the locks between the Parliament Hill and Nepean Point, an easy work compared with many similar undertakings.

He had also to erect a dam at Dow's Lake to prevent the water from running into the Ottawa.

Stopping the water which used to run from the end of Nicholas street to the Rideau River, alongside of Sandy Hill, causing the land to become dry between the Deep Cut and the present Strathcona Park, and building lots are now ready for occupation where the old Indians used to fish and paddle their bark canoes.

The Rideau Canal was commenced in 1826, and open in 1832, but not completed until 1834. The locks were increased in length and width over the enlarged Ottawa ones, but the depth of the water was decreased. They are now 134 by 33 with five feet water. The rapids at St. Anne, 15 miles above Lachine, were not embraced in the scheme of the military canals. There is only three feet fall here and they are navigable at high water. There was also a lock to pass them upon the Vaudreuil side, owned by a forwarding Company. At the Lachine

Canal locks are only 100 by 24 feet compared with 134 by 33 feet of those of the Rideau. It is possible that the original intention, before the whole scheme was abandoned, was to reach the St. Lawrence below Montreal by that branch of the Ottawa, which passes behind the Island of Montreal, in which case the St. Anne's Rapids would be avoided.

The Grenville locks were commenced before the Lachine, which probably accounts for their great length. The first lock at St. Anne was built after the union of the two provinces (1841) and completed in 1843. It was 190 by 45 feet in the chamber, with 6 or 7 feet of water. A new one 200 by 4 feet, with 9 feet of water, has been placed alongside. These latter dimensions are those adopted for the Ottawa and Lake Champlain route, so that a vessel starting from Lake Ontario, then to Montreal, afterwards to Chambly River, can enter the United States at Rouses Point without breaking bulk.

The military canals, between Carillon and Grenville, were three in number and overcame a fall in the Ottawa River of nearly 60 feet. Carillon was the lowest, then la chute a Blondeau, and thirdly the Carillon Canal cut in the rock. Some twenty years ago an enlargement in the in dam at Carillon raised the river 9 feet, so that there are now only two canals, the Carillon three-quarters of a mile in length with locks, and the Grenville five and three-quarter miles long, with five locks separated by a navigable reach of river of 5½ miles. These two canals are now enlarged to the scale fixed for the Ottawa and Lake Champlain route.

Measured from Lachine, the distance to Kingston by the Ottawa and Rideau route is 218 miles, as compared with 170 miles by the St. Lawrence. The number of locks is 55 and the total lockage 509 feet (345 rise and 164 fall), against 26 locks and 207 feet lockage (all rising), by the St. Lawrence. Of the 111 miles of this route between Lachine and Ottawa City, nearly 7 miles are canals, and of the 126 miles of the Rideau route between Ottawa and Kingston, about 16½ are caanls; that is St. Anne, Carillon, Grenville, forming three separate works.

The 126 miles of the Rideau route between Ottawa and Kingston contain about 16½ miles of canals.

The lesser length of canals upon the straight route of the St. Lawrence between Montreal and Lake Ontario is certainly an advantage, but the distance which separate them makes the country on both sides of the Rideau River quite independent from that other highway. The larger traffic follows, of course, the vessels of vast capacity, but the inner trade could not dispense with the services of the smaller

canals. It must be noted here that the water of the Rideau is multiplied by the means of dams at various places, and therefore admits of a more extensive navigation than any river of its size, which cannot be improved by works of art.

Some care must be taken now in order not to diminish the volume of water coming from the mountains, where the sources of the Rideau and the Cataraqui Rivers are located. This can be done by protecting the forests on those heights, otherwise the supply will gradually become less and the consequences need not be explained.

AUGUSTINE P. SULTE.

January 13th, 1907.

The Chambly Canal.

Taking its rise in the waters of Lake Champlain, the River Richelieu flows northerly into the St. Lawrence River at Sorel, some forty miles below the city of Montreal, and at the head of Lake St. Peter. Its length is about 80 miles. With the exception of a slight obstacle at St. Ours, ten miles from its mouth, the river is naturally navigable to Chambly, where it expands into a beautiful lake thirty-two miles south of St. Ours. Between Chambly and St. John, for a distance of twelve miles, a series of rapids, representing a total fall of 74 feet occur, and from St. John to the Lake, a distance of 25 miles, navigation is unimpeded.

The River flows along the counties of Missisquoi, Iberville, Rouville, St. John, Chambly, Vercheres and Richelieu.

It was formerly known as the River des Iroquois, because when the hatchet was dug up and the fury of the savages clamored for blood and revenge, the Iroquois tribes were wont to penetrate into the country of the Montagnais, the Algonquins and the French by means of the waters of Lake Champlain and its outlet, the Richelieu. It was known to the French, at various times, as the St. John, the St. Louis, the Saurel River, but was finally called the Richelieu after the Grey Cardinal.

The river was directly connected with the Hudson river, which flows into the harbor of New York, by means of Lake Champlain, Lake George, and the creeks and portages which unite these bodies of water and the two rivers.

The English settlers who came to the western hemisphere to carve out for themselves and for the motherland a share in the newly discovered continent, spread themselves along the Atlantic Coast, from Virginia to Maine; the Dutch secured New York and, ascending the Hudson, founded the city of Albany; while the French had no hold on the sea coast except in Acadia, and Cape Breton Island, and, to a limited extent, in Newfoundland, but pushed their way inland along the St. Lawrence and its tributaries.

After the fortunes of war had enabled the English to supplant the Dutch in New York and Albany, and when wars in Europe and local jealousies and enmities in America begot hostilities between the French and the English settlers, and when it entered the mind of one

nation to harass the other, recourse was often had to the direct route from the Atlantic seaboard to the St. Lawrence by way of Hudson's river, the two lakes lying between the Green Mountains of Vermont and the Adirondacks, and the waters of the Richelieu.

When Champlain, in order to conciliate the savages surrounding the French settlement on the St. Lawrence, accompanied a band of Montagnais and Algonquins on an expedition against the Iroquois in the Mohawk Valley, he was assured that the water way was unobstructed, and Parkman gives a vivid picture of the country through which they passed.

"As they ascended the river, walls of verdure stretched on left and right. Now, aloft in the lonely air, rose the cliffs of Beloeil, and now, before them, framed in circling forests, the Basin of Chambly spread its tranquil mirror glittering in the sun.

"Champlain, leaving his companions, crossed the Basin, and tried to pursue his upward course, but as he listened, on the stillness the unwelcome noise of rapids reached his ear, and, by glimpses through the dark foliage of the islets of St. John, he could see the gleam of snowy foam and the flash of hurrying waters.

"Leaving his boat, he pushed his way through the damps and shadows of the wood, through thickets and tangled vines, over mossy rocks and mouldering logs. Still, the hoarse surging of the rapids followed him, and, when parting the screen of foliage, he looked out upon the river, he saw it thick set with rocks, where plunging over ledges, gurgling under drift logs, darting along clefts and boiling in chasms, the angry waters filled the solitude with monotonous ravings."

The corner of land between Chambly on the Richelieu and Montreal, was the old battlefield of the French and the Iroquois, and when the Carignan regiment was sent out to the colony in 1665, Intendant Talon and de Tracy, the commander of the forces, sent it on to erect forts along the Richilieu River, and to take up lands as colonists in the vicinity of the forts. Thus, a fort was established at Sorel to replace the dismantled blockhouse which had been erected there in 1626; another was built at the head of the lake and the foot of the rapids of Chambly, and another at the head of the broken waters. Seignories were granted to the officers of the regiment, de Sorel, de Chambly, de Vercheres, de Contrecoeur and de St. Ours. These names have been perpetuated by their bestowal upon the municipal divisions of the surrounding country.

De Chambly's manor was built on the site of the present town of Chambly, his seigniory extending a distance of four arpents along the banks of the river and of forty arpents easterly into the forest.

From these forts, de Courcelles and Le Moyne started on their expedition against the Mohawks in 1666 and 1690, and from them poor Father Bressani went forward to be tortured by the savages and to be rescued by the Lutheran Dutch.

Schuyler in 1690 and again in 1691, swept the surrounding country with fire and sword; Nicholson pushed back the weaker numbers of de Ramesay in 1709 from the fort de Chambly, and Haviland came down the Richelieu the year following the taking of Quebec, captured the forts, and hastened forward to the surrender at Montreal of all that remained of French dominion in Canada.

Here again came Montgomery to take fort de Chambly in 1775 on his way to Montreal, and to his early death before the walls of Quebec.

It was during a raid by the Iroquois, in 1692, that Madeleine de Vercheres, a girl of 14 years, took charge of the fort of that name which was built on the seigniory adjoining that of de Chambly, her father being absent. Her garrison consisted of two terrified soldiers, one man servant, one refugee settler, an old man of 80 years, and two small boys, her brothers. She gave the command, placed each at his post and misled the savages by a show of imaginary force, and watching day and night, held them at bay until relieved the following week by troops from Montreal.

A similar instance of bravery occurred during the patriotic uprising in 1837, when the feeble and old Monsieur de Bartzch and his daughter Caroline, defied the rebel horde alone and unaided until their rescue came. Her son, Mr. F. de Bartzch Monk, is today one of the distinguished leaders of His Majesty's loyal opposition in our House of Commons.

It was in the neighborhood of the Richelieu that the rebellion of 1837 was hatched, and developed its greatest fury, at St. Denis and St. Charles, and it was from the fort of Chambly and of St. John that the loyal troops went forth to crush the ill-formed array of misguided and deserted farmers.

The war of 1812 had demonstrated the necessity of improving the navigation of the Richelieu, and the paths which led on flood and field to gory victory, were also found to be the ways of progress and commerce. Sorel is distant 400 miles from the harbor of New York as the crow flies. It is also 400 miles from the mouth of the St. Lawrence. The route along the Richelieu, and up Lake Champlain and down the Hudson River, is almost a straight line. The Champlain canal unites the two latter bodies of water, and the only impediment along the way consists of a shoal at St. Ours and the rapids of Chambly.

In 1818, a company was formed and obtained from Parliament a charter empowering it to construct a canal to avoid the Chambly Rapids, and to otherwise improve the navigation of the Richelieu river.

The Company caused surveys to be made, and published a report on the best plan to be adopted in the construction of the canal.

Nothing further was done until the year 1823, when a sum of money was appropriated by the Legislature for the construction of the canal, and provision was made for the appointment of commissioners to undertake the work after the completion of the Lachine canal.

The services of Peter Fleming, C.E., were secured to prepare plans and estimates of the work. Mr. Fleming reported that a sum of $216,668.00 would be required to complete the task. Sir James Kempt, who was then Administrator of the Province, wrote the Commissioners that the estimate was too low, and that he had referred the matter to an officer of the Royal Engineers.

The latter reported that the work would cost the sum of $386,980. Mr. Fleming persisted in his estimates, and the Commissioners obtained a confirmation of his views from Messieurs Hanlon and Hopkins, and presented a report to Parliament in December, 1830, in which they expressed the opinion that three civil engineers who had gone over the works were better able to judge of the probable cost than the most distinguished Royal Engineer who had never seen that section of the country.

Parliament approved of the report and voted the supplies requested, but the veto of Sir James Kempt annulled the proceeding.

After the Union of the Canadas, Lord Sydenham, the Governor, deeming that the material development of the country required active encouragement, recommended that Parliament should at once apply the proceeds of a loan which had been guaranteed by the Imperial Parliament, to the immediate construction of the Chambly Canal, and of other works. This was in 1841, and work was energetically begun after the appropriation had been made by the Legislature, and two years later, the Chambly Canal was completed.

The work had however been done in a most unsatisfactory manner, and it had to be renewed in 1858.

The system was further enlarged in 1875 and 1881.

The construction consists of a single lock at St. Ours, 32 miles below Chambly and of the Canal proper.

The Canal is built on the west side of the River, and extends from the town of St. John to the beginning of the lakes referred to in the account of Champlain's visit to the spot in 1609.

The locks are 9 in number, and their dimensions are as follows:— Guard Lock at St. John, No. 1, 122 feet; Lift Lock No. 2, 124 feet; Lift Locks, Nos. 3, 4, 5, and 6, 118 feet; Lift Locks Nos. 7, 8, and 9, combined 125 feet. The total rise or lockage is 74 feet. The depth of the water on the sills, 7 feet. The canal is 36 feet wide at the bottom, and 32 feet wide at the water's surface.

The total expenditure in connection with the canal, prior to Confederation was $634,711.76, and up to June 1889, there had been expended a further sum of $276,061.97.

Since then bridges have been built over and a viaduct under the Canal, and a macadamized road and improved tow-paths have added to its appearance and usefulness.

The power generated by the descent of water at Chambly is carried into Montreal for the purpose of giving light, heat, and power to the city of Maisonneuve.

The waterways of Canada and of the United States are attracting greater attention every day, and an International Commission to study the subject was appointed and met in 1896. It published a report in the year following, in which it drew attention to the advantages of the route by way of Lake Champlain and the River Richelieu. It would give the greatest extent of wide and deep water, the least mileage of artificial channel, and the minimum of lockage, while it permitted of extension to Montreal and thence to Europe on the shortest possible line.

These considerations induced the Canadian Commissioners to recommend the route, and they further stated that Canada's interest in such waterway was only second to that of the United States, and that a joint arrangement would give an opportunity of doing what Canadian canals failed to do, namely, of obtaining a maximum amount of the western trade for the St. Lawrence, and, in addition, it would give a more direct navigation upon the largest scale, between Montreal and Lake Champlain, with the New England frontier, with the Hudson River and New York, as also the most economical connection possible with Chicago and Duluth and the Canadian port of Fort William on Lake Superior.

Should the views of the Commissioners prevail in the near future, we may live to see the path which led the savage on his way to the massacres of Lachine and of Deerfield, become the highway of commerce for all the lands along the St. Lawrence and the Great Lakes, including hose which are watered by the Ohio and the Ottawa.

MARY GERENISH H. FORAN.

Friday, 11th December, 1908.

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